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THE PALACE OF MINOS

AT KNOSSOS

'THE PARTRIDGE FRESCO' (SECTIONS 1 AND 2)

From Pavilion of 'Caravanserai'

(Restored drawing by E. Gilliéron, fils)

THE PALACE OF MINOS

A COMPARATIVE ACCOUNT OF THE SUCCESSIVE STAGES OF THE EARLY CRETAN CIVILIZATION AS ILLUSTRATED BY THE DISCOVERIES AT KNOSSOS

By SIR ARTHUR EVANS

D.LITT., F.B.A., HON. F.R.I.B.A., ROYAL GOLD MEDALLIST, R.I.B.A.

FOREIGN MEMBER OF THE R. ACAD. OF THE LINCEI, OF THE ARCADEMIA, PALERMO, AND MEMBER ACAD. OF THE GÖTTINGEN SOC. OF SCIENCES, OF THE R. ACAD. OF SCIENCES, AMSTERDAM, OF THE CHICAGO, ARGENTINE AND AMERICAN ANTIQUARIAN SOCS. AND THE ANTH. SOC. OF ATHENS; CORRESPONDENT OF L'INSTITUT DE FRANCE

HONORARY KEEPER AND VISITOR OF THE ASHMOLEAN MUSEUM IN THE UNIVERSITY OF OXFORD

VOLUME II: PART I

FRESH LIGHTS ON ORIGINS AND EXTERNAL RELATIONS: THE RESTORATION IN TOWN AND PALACE AFTER SEISMIC CATASTROPHE TOWARDS CLOSE OF M. M. III, AND THE BEGINNINGS OF THE NEW ERA

WITH FIGURES 1–223 IN THE TEXT, PLANS, AND COLOURED AND SUPPLEMENTARY PLATES

MACMILLAN AND CO., LIMITED
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PREFACE

Since 1921, when the First Volume of this work was published, the active researches set on foot by me to clear up moot points and to enlarge the horizon in many directions have been carried on almost continuously. The excavation of Knossos itself may almost be said to have renewed its youth. The results, indeed, have been a perpetual source of wonderment, while, at the same time, it may fairly be claimed for them that they have supplemented and confirmed in a remarkable manner the general conclusions set forth in the previous Volume.

They have filled up gaps and made the story more continuous. They have helped, moreover, to set it on a new foundation. As regards the actual birth of the more advanced type of culture that may properly be called 'Minoan', the discovery of houses beneath the Central Court belonging to the very latest Neolithic stage has supplied fresh links with the pre-dynastic – or proto-Libyan – civilization of the Nile Valley and confirmed the view that it was thence that came the first formative influence that reached the 'Mid-Sea land' and enabled Cretan civilization gradually to detach itself from an inert Aegean mass.

The fresh materials obtained by Dr. Xanthudides from the primitive bee-hive tombs of Mesarà in the extreme Southern district of the Island have given substance to this view. As a sequel to these, moreover, explorations undertaken by myself across the whole central zone of Crete, and here for the first time recorded, have made it possible to trace at intervals the course of a very ancient Minoan paved way, which ultimately brought Knossos into connexion with what seems to have been an important port at Komò on the Libyan Sea.

The corollary to all this has been the emergence of new and striking evidence of the importance formerly attaching to the Southern approach to the Palace site itself, of which the earlier excavations had given no inkling. In Sections of the first part of this Volume are described the piers of the mighty Viaduct by which the 'Great South Road' approached the bridge-head on this side and the monumental 'Stepped Portico' that led up from it to the South-West Palace Angle. Here, moreover, as in the case of another

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hitherto unrecognized entrance to the North-West, the proofs were afforded of the former existence of portals adorned with sculptured bands resembling those of the 'Treasury of Atreus' at Mycenae.

Of even greater human interest than this once stately Portico is the extensive building brought to light on the opposite slope, overlooking this approach. It is impossible to describe it otherwise than as a 'Caravanserai' or Rest-House for travellers. It revealed, indeed, varied arrangements for their convenience, including elaborate bathing accommodation, a spring-chamber—later a scene of cult—and an elegant little refectory, adorned with an appetizing frieze of partridges.

The Southern route served in later days as an avenue of intercourse with dynastic Egypt, in connexion with which many new data are supplied by the present Volume. A deposit of imported Minoan polychrome pottery at Harageh in the Fayum—more closely dated than any similar discovery of the kind—will be seen to stand in a near stylistic and chronological relation to a splendid hoard of M. M. II vases now brought to light near the South-East Palace Angle. The evolution of a whole series of Minoan libation vases from an Egyptian ostrich-egg type is also of peculiar significance, as well as the formation of a decorative style that can only be called 'Egypto-Minoan'. This style contains a very early Cretan element—here for the first time clearly defined—and will be seen to have a special bearing on the history of many later types, including the Mycenae jewels.

There can be no doubt that, to the last, these Egyptian influences remained preponderant at Knossos, but from the very beginning of the Age of Palaces—as is shown by many evidences here collected—direct relations, such as had not hitherto existed, were opened out with the Easternmost Mediterranean shores, and certain characteristic Minoan objects, such as the 'rhytons' in the form of bulls, ultimately go back, as is here shown, to remote Sumerian prototypes. In the opening out of these Oriental connexions, as well as for intercourse with the East Cretan havens, the Harbour Town of Knossos—some account of which is here given—played an important part, and relics derived from its lapidaries' and artisans' quarters show that here, too, was an important artistic centre. The port of Niru Khani, a little farther East again, illustrates the manufacture, apparently for propaganda purposes overseas, of such ritual objects as tripod altars and huge Double Axes

of the Cretan cult. At Mallia, East again of this, the results of the French exploration of an early Palace—here summarized—illustrate the Anatolian sources of the actual Palace plans.

In tracing out these broad relationships it has also been thought well to add some new and striking evidences of the connexions of the Minoan world with the Maltese Islands as well as with the Illyrian Province on the East Adriatic shores, the arts of which have a wider interest as having later reacted on the Celtic tribes. On the other hand, there is here noted the curious appearance in a Mycenae Shaft Grave of a halberd type that can be traced, via the Po Valley and the high passes of the Ligurian Alps, to a form characteristic of the advanced Irish Bronze Age Culture.

The main theme of the present Volume as regards the Palace and its surroundings is the epoch of Restoration which opens what has been here called the 'New Era', and at the same time heralds the evolution of the early phase of the 'Late Minoan' Style. And here, at the outset of my researches, some illuminating phenomena, afforded by the exploration of the collapsed South-Eastern Angle of the Palace, for the first time definitely established the fact that the great overthrow that had preceded and rendered necessary the work of restoration was the result of a great Earthquake that took place towards the close of the Third Middle Minoan Period,[1] early, it would seem, in the second quarter of the sixteenth century B. C.

A contemporary seismic deposit was traceable beneath the restored town-houses as well as throughout a large part of the Palace. It might well be asked, indeed, if other similar stratified evidences of destruction here

[1] My former conclusion that the great catastrophe visible on the site marked the actual close of the Third Middle Minoan phase proves to have been inaccurate. The numerous tests now carried out show that the great Restoration in Palace and Town alike took place at a time when the M. M. III *b* culture as ceramically defined was still in existence. The L. M. I *a* phase had not as yet been evolved. At the same time, since objects from the 'seismic' stratum already show the operation of early Eighteenth Dynasty influences, the date of the Earthquake itself can be hardly placed earlier than about 1570 B. C. The 'Restoration' which almost immediately succeeded on this may be set down therefore at about 1565 B. C., and it is highly improbable that the new ceramic style—L. M. I *a*—could have taken its characteristic form before 1550. This brings down the beginning of the Late Minoan Age to a somewhat later date than had been hitherto supposed. It agrees, however, with the fact—of which the evidence is given below—that the L. M. I *b* ceramic phase almost exactly coincides with the reign of Thothmes III, and may therefore be approximately dated 1500–1450 B. C. But, in any case, historically speaking, the 'New Era' may be said to begin with the Restoration.

traceable might not have been also due to the hand of Nature. The records of modern and Venetian Candia as well as of its classical predecessor show, in fact, that this particular Cretan district has been more liable to earthquakes than perhaps any European area—the greater shocks averaging two in a century. To archaeological science it will be certainly a new suggestion that the successive destructions at Knossos, of which we have the stratified evidence, and which can indeed be approximately dated, correspond with successive seismic overthrows.[1]

In June 1926, as related below,[2] I shared the dramatic and awe-inspiring experience of a fairly severe earthquake shock—overdue, according to the local reckoning—in the head-quarters house on the actual site of Knossos, and the vivid experiences there gained have greatly assisted my own realization of the tremendous destructive force that had been operative on the site at perpetually recurring intervals. These experiences at the same time brought with them a new understanding of the 'infernal' side of the local cult.

The architectural work of the 'Restoration' is in many ways best illustrated by some of the good town-houses of Knossos, of which a series is here described—several of them wholly or largely for the first time. The evidences of culture and well-being among the burgher class in the first half of the sixteenth century B.C. are truly astonishing, and nowhere more than in the comparatively small 'House of the Frescoes' with its stacked remains of brilliant friezes of natural scenes and its painted as well as engraved inscriptions. The floral designs of these frescoes are in many cases repeated on the vases found on the house floors, and are of great interest in their bearing on the genesis of Late Minoan ceramic decoration. Many other objects of art found in these private dwellings—such as the ivory Griffin and the inlaid bull's head 'rhyton', with its crystal eyes—were of surpassing beauty, and a whole series of hoards also came to light of bronze tools and of elegant vases, including a silver service. The variety and convenience of the house-planning is also remarkable. The size and disposition of the houses of the inner town have themselves been so far sampled that I have ventured—with a proportional estimate for the poorer outer quarters—to come to some conclusions as to the actual population of 'broad Knossos' in its

[1] See below, p. 320, note 3. [2] See p. 315 seqq.

great Minoan days, which, if we add the Harbour Town, can hardly be safely reckoned as having included less than 100,000 inhabitants. To the cemeteries has now been added that of Mavro Spelio, facing the Palace on the steep beyond the stream, of the greatest interest as carrying back the rock-cut type of chamber tomb common later in Mainland Greece to, at least, the eighteenth century before our Era, and as supplying a link with Egyptian rock-tombs dating from the early part of the Middle Kingdom.

The Palace itself in its restored form has been described in the present Volume, so far as the plan is recoverable, throughout its Western quarter. Indications are here given of the existence of an important stepped entrance, with its sculptured portal, at the North-West Palace Angle. At the same time evidence due to supplementary explorations has thrown a wholly new light on the history of the Western entrance system, where the passage ran originally due East. The imposing West Porch as it existed in the later Palace and the adjoining 'Corridor of the Procession' (which is shown to have had an earlier scheme of decoration) are very fully illustrated, while fresh researches have given a surprisingly complete shape to the South Propylaeum by which this State passage reached the *piano nobile* of this quarter of the building and its principal 'Tri-columnar Hall'. In the reconstituted bay of the Propylaeum a replica of the Cup-bearer Fresco there found has been replaced in position, and the original grandeur of this stately hall, the prototype of those of Tiryns, can be gathered from Mr. Fyfe's restored drawing.[1] The processional scheme of frescoes, to which the Cup-bearer belonged, and which runs through all this quarter of the building, has been carefully compared in the second part of this Volume with the wall-paintings representing Minoan 'tributaries' from Keftiu and 'the Isles of the Sea' in the tombs of a series of Egyptian Viziers at the Egyptian Thebes.

Partly served by a continuation of the 'Procession' Corridor, partly in direct connexion with the South Porch, was another stately entrance passage of which a full account is here for the first time given. This 'South-North Corridor' is shown from the remains with which it is associated to have had a specially ceremonial character. It was flanked near its Southern end by what seems to have been a small shrine, to which the 'Palanquin Fresco'

[1] P. 711, Fig. 445.

with its sacerdotal figures belongs, together with many clay seal-impressions and a remarkable matrix presenting a religious scene. In the section approaching the Central Court the sacral aspects of this Corridor culminated in the discovery of the remains of a painted stucco relief of a male personage wearing a lily crown with peacocks' plumes (reproduced in the frontispiece of Part II) in whom we may legitimately recognize an actual Priest-King of the Palace Sanctuary.

A careful study of the remains connected with the extension East of the façade line of the Palace on the Central Court, which was the special characteristic of the restored fabric, has proved the existence of a series of open porticoes and verandahs occupying the space between the earlier and later frontage. On the basis of this the remarkable restoration of the late Mr. F. G. Newton, opposite p. 814 in Part II of this Volume, gives for the first time a trustworthy view of the façade of the West Palace Section as it once existed, rising three stories, terrace above terrace, on this side of the Central Court.

In the middle of this façade stood a small columnar shrine of the class well known from frescoes and embossed gold plates, and of which the actual ground-plan, with the column-bases on the wings and indications of the central *cella*, had been recognized by me some years since. A revised restoration of this is here given.

Supplementary researches have thrown fresh light on the Stepped Porch immediately North of this, which proves to have had a second column on a higher level, while East of the landing here by which access was obtained to the first floor of this quarter, a remarkable development took place. Blocks *in situ* or only a little sunken were found above the lower wall-tops showing the cuttings for the steps (parts of which also came to light) of a fine central staircase leading up to the higher floors. This was flanked by a passage way on its South side leading to what proves to have been a broad open corridor above the 'Long Corridor' of the basement Magazines. This passage also gave access to what was clearly the principal Sanctuary hall 'of the three columns' into which opened a small treasury chamber containing a rich deposit of votive vessels mostly of marble-like material, more of which have now been put together. Among these were 'rhytons' in the shape of lions' and lionesses' heads answering to the cult of

the lion-guarded Minoan Rhea, as seen on seal-impressions found by the neighbouring shrine. Of all the objects of ritual character found at Knossos these may be thought to have the highest interest, since part of a lion's head 'rhyton' of the same material and fabric as those from the Central Palace sanctuary was found at Delphi beneath the very *adyton* of the temple of Apollo, showing that the site had once been the scene of the Minoan form of worship in which the Goddess was supreme.

General plans on a large scale of both the Eastern and Western Sections of the Palace are inserted at the end of Part II of this Volume, together with a restored Plan of the Western Quarter. Among subjects reserved for the concluding Volume of this work may be mentioned the 'Miniature Frescoes' from the deposit North of the Central Court, the bull-grappling reliefs of the Northern Entrance, and the 'Cow-boy Frescoes' of the Eastern terrace border. Important supplementary materials belonging to the great Age will be also illustrated from the Domestic Quarter, including the Ivory Deposit and some remarkable relics that stand in close relation to it. The fragmentary high reliefs of wrestling and bull-grappling, perhaps the noblest products of Minoan Art and derived from what seems to have been the principal hall of the East Quarter, also remain to be recorded. Finally, the remains of the last Palace period—L. M. II—will receive some special treatment including the Room of the Throne and its fresco decoration, the noble 'Palace Style' jars, the numerous seal-impressions, and some general account of the information supplied by the inventories and other documents preserved on the clay tablets of the Linear Class B.

I can only here repeat the acknowledgements contained in the Preface to my first Volume to fellow workers in the same field, and in a principal degree to Dr. Duncan Mackenzie, my assistant in the excavations, and now fulfilling his new post as Archaeological Curator at Knossos. To some quarters indeed I can no longer turn for friendly help, nor can I convey the acknowledgement of my indebtedness. Richard Seager, from whose felicitous explorations so much seemed still to be gained for the story of Minoan Crete, has been called away before his time. The architect, F. G. Newton, of whose singular ability in reproducing the living images of ancient buildings from their *disjecta membra* this Volume contains splendid proof, has also been taken from us.

It is with the greatest pleasure that I have to record that Mr. Theodore Fyfe, at present Director of the Cambridge University School of Architecture, to whom the earliest plans of the Palace were due, was able at my request to pass some weeks at Knossos in 1926, where he superintended the final reconstitution of the exquisite little Royal Villa—the earlier planning of which was also due to him—thus assuring its permanent conservation. He has also been able to bring the general plans of the Palace, including that of the restored *piano nobile* of the West Section, up to date in the form in which they are presented at the end of Part II of this Volume. He has thus incorporated the results of Mr. Christian Doll's thoroughgoing work in the East quarter, as well as the late Mr. F. G. Newton's restorations of the Upper Palace halls on the West. At the same time he has been able to execute for the present work the fine restored view of the South Propylaeum, and to reproduce a series of delicate details of sculptured friezes.

The plans of the 'South House'—with many interesting details, even to the form of Minoan locks—here for the first time published—as well as those of the 'Little Palace', are the work of Mr. Christian Doll. For several plans and sections both inside and outside of the Palace, and some excellent drawings, I have also been indebted to Mr. Piet de Jong, whose services were on several occasions placed at my disposal by the Director of the British School at Athens. Thanks to the Trustees of the British Museum, Mr. E. J. Forsdyke of the Department of Classical Antiquities was able at my request to assist in the excavation of the early cemetery beyond the Kairatos, and this was continued by him independently with interesting results in 1927.

To Monsieur E. Gilliéron, fils, I have been continually indebted for his invaluable assistance in piecing together painted plaster panels and his skilled restoration of the fresco designs, some of which have supplied the Coloured Plates of this Volume. With his help I have also been able to place replicas of some of the most interesting of these in the positions occupied by the originals on the Palace walls.

My researches into the early relations of Knossos with the pre-dynastic civilization of the Nile Valley, set forth in the earlier Sections of this Volume, have been much assisted by the fertile exploration of the *Vaulted Tombs of Mesarà* by Dr. Stephanos Xanthudides, the Cretan Ephor of

Antiquities, who has always placed his own information and the resources of the Candia Museum at my disposal in the most obliging way.

To my French colleagues, Monsieur J. Charbonneux and, after him, Monsieur F. Chapouthier, I am in a special way indebted for the friendly permission to study on the spot their epoch-making discoveries in the early Palace of Mallia about which I have been therefore able to give some first-hand appreciations, illustrated by means of photographs liberally supplied by the excavators themselves. The comparative value of these for the Knossian Palace in its earliest shape is very great.

In the early Nilotic and Egyptian field I have received most valuable help from Professor P. E. Newberry, who has placed valuable materials at my disposal, and I have also had the benefit of the admirable drawings illustrative of the Minoan tributaries depicted in the Theban tombs by Mr. and Mrs. de Garis Davies. As in the past, moreover, I have received scholarly and painstaking help from Professor F. Ll. Griffith of Oxford, from Dr. H. R. Hall, Keeper of Oriental Antiquities in the British Museum, and from Dr. Alan Gardiner, the Editor of the *Journal of Egyptology*.

I have endeavoured throughout this work to express, however imperfectly, my acknowledgement to the current publications of fellow workers. But it is always possible—especially for those engaged largely in field work—to miss printed materials, scattered as they now are beyond all compassable range. That others may have corroborated conclusions independently reached in the course of these inquiries is itself all to the good. Some important contributions to Minoan archaeology, indeed, that have appeared since this Volume was in the press I have, perforce, been unable to refer to. Amongst these may be mentioned Professor Martin Nilsson's important work on Minoan Religion,[1] which traverses so much common ground in all that affects that subject. For his generous references to my own work I can only here offer my warm acknowledgements. My best commentary is supplied by the new materials concerning the attributes and cult of the great Minoan Goddess contained in this Volume, and in particular the evidences of her chthonic aspect.

Nor can I make more than a very inadequate reference here to the

[1] *The Minoan-Mycenaean Religion and its Survival in Greek Religion.* Lund, C. W. K. Gleerup: Oxford University Press, &c., 1927.

Memorial Volume of Essays on Minoan subjects[1] that has just reached me—the work itself of a select group of scholars and presented to me, in honour of my seventy-fifth birthday, under the auspices of the Oxford Philological Society, on behalf of a much larger number of well-wishers, not only in my own University, but of many countries, including most of those whose names I most highly respect for their achievements in archaeological and allied subjects. It is a touching tribute and a great encouragement.

ARTHUR EVANS.

YOULBURY, BERKS.,
NEAR OXFORD,

October 15, 1927.

[1] *Essays on Aegean Archaeology*, presented to Sir Arthur Evans in honour of his seventy-fifth birthday: edited by S. Casson. Oxford, Clarendon Press, 1927.

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§ 33. Discovery of Late Neolithic Houses beneath Central Court: traditional affinities with Mainland East.

Retrospective observations; The Site of Knossos; Position not commanding like Mycenae, but suitable for primitive needs; Original Neolithic settlement comparatively low-lying; 'Tell' formed by successive deposits; Neolithic culture of Crete fundamentally Anatolian, conforming to late Geological Tradition. The 'great gulf fixed' between the Anatolo-Cretan Neolithic and that of Mainland Greece with its North-Eastern associations; Discovery of late Neolithic Houses beneath Central Court of Palace, 1923–24; Incidental find of coins and pottery from adjoining site of Greek Temple—the 'House of Rhea'; Two main Late Neolithic layers, α and β; Transitional elements in culture; The 'Chalice' type and proto-Egyptian copper parallel; Clay idols; Stone implements and Copper Axe (imported ?); Axe amulet; Fragments of variegated stone vessels—evidence of pre-dynastic Egyptian influences; Plan of Neolithic houses—the Store Cells; Appearance of fixed hearths; Contrast with Minoan usage of movable hearths; Fixed hearths a Mainland traaition, inheritance of Continental Climate; Reappearance of Anatolian type of Central Hearth beyond Aegean; Movable hearths of the Minoan Age symptomatic of Southern Influence.

Retrospective survey needed in view of fresh materials.

A great earthquake[1] seems to have laid in ruins a large part of the Palace as it existed towards the close of the Third Middle Minoan Period. Before, however, considering this catastrophic event and the widespread activities that mark the beginning of the New Era it is well to take a retrospective glance at the central subject of this work in its larger bearings, as illustrated by further finds due to supplementary researches. These, it will be seen, have thrown a new light on the rise of Knossos, to become the dominating centre of the insular life at the very epoch when Minoan culture was to win for itself a wider field in what was henceforth to be known as Mycenaean Greece.

More and more—beginning, as is now made apparent by some remarkable finds described below, from the latest Neolithic stage—the determining

[1] See below, p. 287 seqq.

cause of this brilliant development of early civilization is seen to be traceable to the opening out of communications with the Nile Valley by means of a very ancient transit route across the island from Knossos to the havens of the Libyan Sea, surviving vestiges of which, at least in its later form, are described below. Monumental evidence of the supreme importance of this Southern route is now indeed before us in the dramatic emergence of the foundation walls and pillars of a stately portico stepping up the slope to the Palace on that side and approached on the opposite banks of the ravine by a viaduct of truly Cyclopean build abutting on the bridge-head.

Site of Knossos: not commanding.

In considering the site of Knossos and the part it played in the early history of the East Mediterranean basin we are continually struck with the apparent inferiority of its position as compared with that of other great centres in the same geographical region. Troy, with its Pergamon, dominated its plain in the same way as the acropolis of Mycenae or the Kadmeia of Thebes. So, too, in Crete itself, Phaestos, with its rival Palace, looks down on the long plain of Mesarà. But the Palace Sanctuary of Knossos on its artificially flattened knoll is overlooked in every direction by better points of vantage, including the height immediately West which formed the citadel of the Greek and Roman City. It stands back, moreover, from the river-mouth and harbour and it is only its uppermost terrace that catches the merest glimpse of sea. To the visitor approaching the site by the high road from Candia its remains come suddenly into view, cradled amidst the surrounding hills (see Fig. 1).

Site suitable for primitive needs.

The explanation is to be sought in the special circumstances of its origin. In the case of so many other ancient centres of human habitation the deliberate designs of warlike chiefs seem to have played a leading part in the choice of position, and the town arose within the walls or under the shadow of a fortified acropolis of native rulers. But the beginnings of Knossos were of a quite different order. It seems to have taken its rise in remote antiquity simply because it was a spot suitable for the needs of primitive man. So far, indeed, from starting as a hill stronghold it may be said to a great extent to have formed its own hill. As has been shown in an earlier Section of this work,[1] the hill of Kephala on which the great Palace afterwards rose is itself essentially a 'Tell' such as we find in Egypt or the East, built up out of the debris and deposits formed by successive stages of occupation going back without a break to the earliest Neolithic phase of which we have any record in the Island. The residence of

[1] See vol. i, pp. 34, 35.

native dynasts was ultimately fixed here because the site had been a centre of population from immemorial time.

Neolithic Settlement relatively low-lying.

Knossos in truth had grown up without any artificial planting, as deep-rooted in its native soil as the wild liquorice-plants that to-day flourish within its courts.[1] Starting from below the earliest Minoan level the Neolithic strata were found to go down in places to a further depth of ten or eleven metres, or nearly 36 feet, to the virgin rock.[2] There is evidence, moreover, that this Stone Age settlement covered a considerable area. Not only does it underlie the Palace and its outer Courts but it extends beyond its Northern borders [3] and down the slopes to East and South in the direction of the Kairatos stream on one side and its tributary torrent on the other.

Gradual formation of 'Tell'.

In other words, when we take into account the rising of the surface due to these huge accumulations, the Stone Age settlement so far from being on a hill-top lay in a distinct depression among the surrounding ranges. It was thus to a considerable extent sheltered, as the historic Knossos never was, from the fury of the prevailing winds. The gorges that run up hence to the relatively low watershed form in fact the battle-ground of two main aerial forces from North and South, the violence of which often indeed interrupted the excavations. The protagonists on either side are the fierce *Borràs* (Boreas)—the Nor'-Nor'-Easter of Crete—and the hot, depressing *Notià*, lurid with Sahara sand, which often triumphs in the late spring. But these are happily succeeded by the Etesian *Meltems* from the North-West, which from the end of May to October give this Cretan tract a fresher climate than any to be found on the low-lying districts of Mainland Greece.

Key position of Knossos declares itself later.

Unquestionably, the predominance which the Minoan Knossos ultimately obtained not only in Crete itself but throughout the Aegean and a large part of the East Mediterranean world was due to certain geographical advantages inherent in its situation but which had been little dreamed of by its first Neolithic settlers. Apart from the fact that to the West as well as to the South-East it lay on the borders of exceptionally fertile districts, the neighbouring haven at the mouth of the Kairatos and what is now the bay of Candia supplied the best outlet for Central Crete on the Aegean side.

On the other hand, as a landing-place for Aegean craft it possessed special advantages. In the immediate background of the haven the conical

[1] The roots of these plants, which it is impossible to eradicate, go down at times to a depth of over twenty feet.

[2] See vol. i, pp. 34, 35.

[3] North of the Northern Entrance and Pillar Hall, for instance (Excavations of 1923).

profile of the peak of Juktas, as thus seen rising from amidst a lower tract of country, presents a good landmark for many miles out to sea, while the opposite creeks of the island of Dia offered secure shelter against the Northern gales.

It is along this sector of Crete, moreover, that the dorsal chain, represented on the one side by Mount Ida, on the other by the Lasithi range (or Western Dikta), dips down so as to afford easy access to Mesarà, the largest and most fertile plain of the Island, and through it to the Southern towns and havens. Special attention will be called to the importance of the transit route thus opened in bringing Knossos into relation with civilized elements beyond the Libyan Sea.

But these connexions—so far-reaching in their ultimate results—can hardly be thought to have seriously affected its earlier prehistoric phase.

Neolithic Culture of Crete fundamentally Anatolian.

It has been already noted that the Neolithic culture of Crete—of which we by no means have the beginnings in the earliest strata unearthed on the site of Knossos—presents features, such as the occurrence of certain types of clay images, that find their nearest comparisons on the Anatolian side. On the other hand, recent discoveries are bringing out the interesting fact that, up to the dawn of the Age of Metals, Mainland Greece to the Southern littoral of the Morea was occupied by a Neolithic culture of very different affinities.[1] Its most characteristic features indeed, as illustrated by its ceramic fabrics and notably their most developed class with its bichrome and polychrome decoration, curvilinear as well as geometrical, not only fit on to the Thessalian group, but find their continuation through a large part of the Eastern Balkans to the Lower Danube and, beyond the Carpathians, to the Steppes of Southern Russia. Between the Anatolo-Cretan Neolithic and that which makes its appearance on the opposite forelands of Mainland Greece 'a great gulf is fixed', only later bridged by the rise of sea-craft on the Aegean side.

It seems permissible, indeed, to trace in this cultural divergence the continuous operation of physical causes to which was owing the marked difference observable between the fauna and flora of Mainland Greece and

[1] Mr. Blegen informs me that Neolithic remains of the Thessalian kind have not only been brought to light in the course of researches near Corinth, but that he has found them, in the course of the American School researches, at Phlius, the Argive Heraeum, and near Tegea in Arcadia. At Gonià, near Corinth, he exposed a stratification showing below two stages of Neolithic answering to the Thessalian, and, immediately superposed, an Early Helladic deposit illustrating the first intrusion of the Central Aegean culture on the Mainland. Professor della Seta, who has made recent excavations on the South slope of the Acropolis at Athens, has also brought to light Neolithic deposits of the Thessalian Class beneath the Helladic.

that of Crete. This, indeed, is nowhere more distinctly visible than in the neighbouring islands of Cerigo and Cerigotto which stood as their respective forelands at the time of the inrush of the Miocene Sea and the formation of the South Aegean basin. This irruption—later completed by the still greater submergence in Pleistocene times of the tract occupied by what is now the North Aegean—had left Crete part of a projecting horn of Western Asia Minor, nor does the subsequent segregation of Rhodes and the other intermediate islands seem to have affected this fundamental relationship with the Anatolian mainland. Suggestive phenomena are presented by the community of early names both of places and persons in both areas and by the long survival in the island of a dominant proto-Armenoid type.[1]

Discovery of Late Neolithic Houses.

Discoveries made at Knossos in 1923 and 1924 in the Central Court of the Palace have now thrown a clear light on the latest stage reached by the insular Stone Age culture on purely indigenous lines. It has already been noted that in order to obtain a level space for this Court and the adjoining West Section of the Palace the builders had levelled away the original top of the 'Tell', removing thus almost the whole of its Early Minoan strata, and this ancient process of excavation has greatly facilitated access to the Neolithic deposits in this area.. These begin in fact almost directly below the pavement level, and certain stumps of walls that had been brought out here by successive seasons' rains in the South-Western part of the Central Court, where the paving slabs had been torn away, proved to belong to structures that for the first time supply detailed plans of Neolithic dwellings in Crete.

Beneath Central Court of Palace.

Incidental find of pottery and Aeginetan coins from Greek Temple.

Although, except for a small fragment, the Minoan paving had been removed,[2]—partly, it would seem, in quite recent times,[3]—the underlying deposit was as a whole curiously free from any ingredients later than the latest Neolithic. In a section of the South-West angle of the excavated area there were, however, signs of a considerable superficial disturbance marked by the presence of plain pottery of Hellenic type. A more precise indication was supplied by the discovery among the sherds of four silver staters, or 'tortoises', of Aegina, the early diffusion of which in Crete is one of its most marked numismatic features. Two of these, found near one another,

[1] See vol. i, pp. 8, 9 and Fig. 2; also pp. 271, 272 and Fig. 201, *a*, *b*.

[2] The pavement of large limestone slabs preserved in the adjoining S.W. angle of the Central Court is of L. M. I construction, the earlier pavement having been removed at the time of its construction.

[3] The Bey who owned the Tchiflik immediately below the Palace hill on the South-East is known to have carried off a number of slabs from this side of the building in recent years.

were mere dumps, of archaic aspect,[1] not struck later than the seventh century B.C., and a good deal worn. Another, still presenting the earlier, smooth-shelled type of the tortoise,[2] belongs to about the middle of the sixth century. The fourth piece was brilliantly preserved and displayed a tortoise of naturalistic style [3] dating from about 480 B. C. The impression that the coins leave is that they may originally have formed part of more

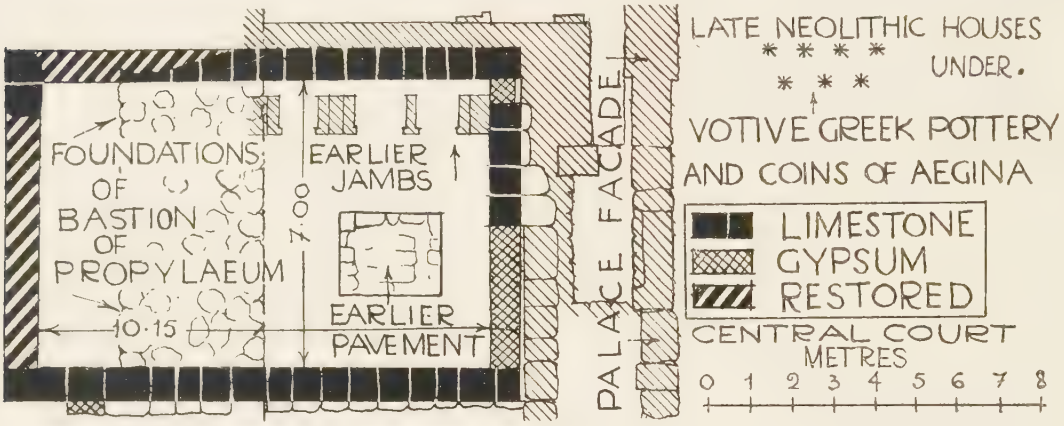

FIG. 2. BASE-BLOCKS OF EARLY GREEK TEMPLE VISIBLE BETWEEN PROPYLAEUM AND CENTRAL COURT.

than one separate hoard deposited in the treasury of an adjacent Hellenic shrine the actual evidence of which has been preserved.

Base-blocks of Temple in neighbouring Palace area.

There are in fact visible in the area that here borders the Central Court the base-blocks of an oblong building, immediately overlying the wall stumps of a Palace chamber and the rough foundations of the bastion of the stepped Porch beyond, blocks from which had been appropriated for this intrusive structure.[4] Its interior dimensions are 10·15 by 7 metres, with a major axis running East and West, the main lines of the building conforming, doubtless for convenience' sake, with those of the Palace (see Plan, Fig. 2). We have here a very simple temple plan showing no traces of cross partitions within or *antae* without.

The debris containing the sherds and Aeginetan coins extends to

[1] Cf. *B. M. Cat.*, Pl. XXIII, 1–3. The weights were 12 grm. and 12·2 grm. respectively.

[2] Cf. *op. cit.*, Pl. XXIV, 1–2. Wt. 12·3 grm., counter-marked with a leaf symbol.

[3] Cf. *op. cit.*, Pl. XXIV, 10. Wt. 12·4 grm.

[4] In the course of the partial reconstitution of the stepped upper Propylaeum some of these blocks were replaced in their original context.

within about three metres of the East wall of the temple and have afforded the first clue to its approximate date. The vase fragments themselves were generally plain, showing only in rare cases a black or red glaze. They seem to have mainly belonged to the *kantharos* type with handles curving out from the inside of the cup. There were, however, a great number of miniature handleless cups, only *c.* 2·30 cm. in height and clearly of a votive class (see inset).

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'House of Rhea' and Cypress Grove at Knossos.

The existence of this Hellenic temple within the Palace area has a special interest since it fits in with the statement of Diodoros that in his day there were still visible on the site of Knossos the foundations of the House of Rhea and a very ancient cypress grove.[1] It is certainly something more than a coincidence that the later shrine of which we have now the evidence stands on the borders of the Central Sanctuary of the Minoan Goddess, depicted on its official seals like the later Mother of the Cretan Zeus, between lion supporters.[2]

The occurrence of Greek remains at this spot is itself, so far as the excavation of the Palace is concerned, an unique phenomenon. Nowhere else within its boundaries, extended as they were, was any similar record of occupation in classical times brought to light, though outside them, especially to the North-West, there were abundant signs of habitation from the Geometrical period onwards. The probability that a great part of the site was covered in later antiquity by the Grove of Rhea gains support from the straggling specimens of *Cupressus horizontalis*[3] that still grow wild in the gorge of the old Kairatos stream below. The mighty cypress beams of the Palace themselves suggest the accessibility of fine specimens of this tree in early times. Who shall say that during the dark period that followed on the fall of Minoan civilization in the Island this forest growth may not, in the valleys at least, have regained part of the area that it had lost by excessive exploitation? The deserted site of Knossos would thus have more nearly recalled the state in which it was first found by primitive man. In the Homeric Hymn to Apollo it is spoken of as the 'many tree'd'.[4]

Two layers, *α* and *β* in the Neolithic Houses.

With the exception of a small part of the area near the border of the Central Court where these intrusive classical remains were found on the upper level, the Neolithic deposit that had lain immediately beneath the original pave-

[1] Diod. Sic., lib. v, c. 66.

[2] See *Knossos, Report,* 1901, p. 29, Fig. 9, and cf. below, § 65.

[3] This, rather than *sempervirens*, seems to be the true botanical name. A Cretan seal even suggests that its timber was exported (see p. 248).

[4] l. 392, *πολυδένδρεον*.

ment was, as already observed, of a very unmixed composition. Moreover, the uppermost of the two principal layers that can be here distinguished must be regarded as still belonging in its essential features to the insular Stone Age. The contents of both layers indeed represent substantially the same concluding phase of the Upper Neolithic, though the sherds of the upper layer show less of the traditional burnish and present a somewhat paler surface. Incised decoration is even rarer and more superficial there and the material is less coherent. Certain objects from both levels are nevertheless grouped together in Fig. 3, as on the whole complementary to one another; the examples taken from the earlier level being marked α and the others β.

Upper House plans imperfectly preserved.

The upper floors here lay as a rule about 25 centimetres above the lower, both showing a white 'kouskouras' face put on a backing of red earth and prepared clay.[1] Intermediate levels occurred, however, in places so that it was not always possible rigorously to distinguish the contents of the two main systems. The walls of the upper structures, immediately underlying the pavement of the Central Court, had been much disturbed or entirely destroyed over the Western half of the area. Thanks, however, to a slight slope towards the Eastern border the deposit on that side was thicker, and a section of the walls of a later house could be there made out superposed on the earlier structures[2] (α) at a slightly different angle (see Plan, Fig. 8 and inset). Floor deposit answering to the later system (β) was nevertheless traceable throughout the greater part of the area explored.

Upper Neolithic stage brief and transitional.

The upper and lower stratum here laid bare do not together occupy more than half a metre in depth, a small proportion of the total extent of the Neolithic beds in this part of the site, which amounts to about seven metres.[3] There are clear indications, however, that the more or less transitional phase illustrated by the Upper Neolithic was of relatively short duration. Already, in the neighbouring area to the West, beneath the upper platform of the South Propylaeum, pottery was brought out, little more

[1] A typical fragment of pavement belonging to stratum β gives a section about 3·80 cm. thick, consisting of an upper coating of put 'kouskouras' (*c.* 1·50 cm.) resting on a thin layer of red earth (*c.* 0·80 cm.), below which was a layer of pale prepared clay of about the same thickness as the put 'kouskouras'.

[2] Dr. Mackenzie notes that at the N.E. corner, where this superposition is clearest, the overlying wall has its 'separate bedding of mud-mortar and pebbles 10 cm. thick which runs along the top of the earlier wall'.

[3] A pit dug through the Neolithic strata 9·15 m. east of the E. wall of the Upper Neolithic structures reached the virgin rock ('kouskouras') 6·85 m. below the level of the Central Court pavement. A few centimetres, however, may be safely added to this for surface portions of the Neolithic levelled away for pavement. Elsewhere in places the Neolithic goes down over 11 metres.

than a metre down in the Stone Age deposit, representing the very acme of the mature Middle Neolithic phase, including hand-burnished pottery, of the old crisp make, unsurpassed in brilliance.[1] But the growing use of the potter's oven coupled with the operation of new influences from overseas seems to have brought about a somewhat rapid transformation. Old processes were given up but at the same time the new were not sufficiently advanced, so that the general effect in the ceramic field is one of decadence. It is also to be observed that, while in fabric and texture and in certain typical forms, such as the chalices, the pottery of this series shows significant anticipations of the products of the First Early Minoan Period, in other marked respects it falls short of them. There is no trace for instance of painted ware and incipient glaze, nor of the characteristic 'through and through grey' biscuit. On the other hand, Neolithic shapes of very ancient descent predominate, such as the vessels with upright walls,[2] well illustrated in this case by remains of a series of large pans. The old tradition, too, was specially notable in the handles, the more developed vertical 'band' handle occurring side by side with the horizontally perforated knobs out of which it grew.[3] Fragments were also found of handles of the 'wishing-bone' type,[4] but these were rarer than in the Middle Neolithic strata. Part of a clay ladle came to light with a flat handle of the parallel type showing a rounded opening.[5]

Decadent aspect of pottery.

Absence of some typical E.M. I. features.

Still fundamentally Neolithic.

The general *facies* of the pottery from this Late Neolithic deposit, of which some forty basketfuls passed through my hands, was by no means prepossessing. The tone, owing to the new procedure, was predominantly a pale red, but the vessels, especially the larger ones, were still imperfectly baked. The surface was generally dull and the fine 'bucchero' tradition of the earlier series was to a great extent lost, except in the case of some small cups. At times, too, the surface of the pots was covered with a wash

[1] The surface of the Neolithic rises here above that of the Central Court. Among objects from this deposit were fragments of highly polished 'rippled' ware, some with a mottled red and dark brown surface recalling the later Vasilikì ware, and many remains of fine black burnished pottery including a handle-less mug, a beaked spout belonging to a bowl like Fig. 3, *x*, several large handles of the 'wishing-bone' type, and a quaint bird's head with striations on the neck, perhaps belonging to a figure like *P of M.*, i, Fig. 11, 1. There was also found the central part of a clay chalice like those referred to below. The proportion of incised fragments was much larger than in the later deposit here described.

[2] Cf. *P. of M.*, i, p. 39, Fig. 6, 1.

[3] In one case we see this in a rudimentary form without the perforation.

[4] Cf. *op. cit.*, pp. 38 and 40, Fig. 7, 1, 3, 5, 6. The 'wishing-bone' type is also diffused North of the Aegean.

[5] Resembling, *op. cit.*, Fig. 7, 7.

that had afterwards been highly polished. Examples of the old incised decoration are given in Fig. 3, in rare instances containing white inlay (Fig. 3, *o*), but it must be borne in mind that these only represent a fractional percentage.[1]

Large pots of stratum *a*.

On the floor levels of stratum *a*, thanks to the greater preservation of the walling, remains of a series of larger vessels came to light, several of the type shown in Fig. 3, *r*, though, owing to the imperfect cohesion of the walls, their reconstitution was for the most part impossible. An exceptionally large cooking-pot with a diameter of over seventy centimetres found near the hearth in house B contained, together with a serpentine axe, the bones of a kid. It seems to have had four handles. With it were found large stones showing traces of fire. Abundant remains of bones of animals, mostly cut or split, came out throughout both layers of the deposit. These included the Cretan ox,[2] goats, and swine; bones of a dog also occurred. That some of the food supplies were brought up from the sea was shown by

Shell fish.

the numerous cockles found, supplemented by limpets of large size and an occasional whelk and other shells.[3] Many of the cockles and some of the other shells had been bored to be worn as ornaments. A curious find—inside a clot of earth near the floor of House B, and well beneath stratum *a*—was part of a nut which proved to have belonged to the obtuse end of an almond stone.[4]

Prototypes of Early Minoan 'Chalices'.

Some fragments were found of carinated bowls of the type illustrated in Fig. 3, *x*,[5] and which is already represented in Middle Neolithic deposits. The 'bridged' spout of these affords an early illustration of a favourite Minoan form.[6] A still more striking link of connexion is seen in the remains of cups or bowls on conical bases supplying the immediately antecedent stage of the elegant Early Minoan 'chalices', so well illustrated by the remains from the Ossuary Cave of Pyrgos. A restoration is given in Fig. 3, *m*, of a simpler form with slanting incised decoration and a taller and more developed specimen, with burnished vertical striations is shown in

[1] Fig. 3, *t*, with the chevron band against a dotted background has been further adorned with a ruddy ochreous wash.

[2] In *Bos creticus* of Boyd Dawkins. Numerous teeth also occurred.

[3] Amongst them were specimens of *Trochus lineatus*, *Pectunculus glycimeris*, *Spondylus gaederopus*, and *Cypraea*.

[4] The interior of this looked extraordinarily fresh, but the circumstances of the discovery seem to preclude any recent date.

[5] The drawing is based on the fragments of two specimens: the spout of another is placed below for comparison.

[6] The influence of spouted Egyptian copper vessels with very prominent spouts on the Early Minoan class must at the same time be admitted. See vol. i, pp. 80–2 and Fig. 48, *a*.

FIG. 3. OBJECTS FROM LATE NEOLITHIC HOUSES. SCALE $\frac{1}{2}$ (EXCEPT *r*). *a–e*, *k*, *l*, STONE; *g*, *h*, BONE; *f*, COPPER; *m–cc*, CLAY (*a*, LOWER LAYER; *β*, UPPER).

Fig. 4.[1] It will be seen that the Pyrgos chalices are taller and clearly distinguished by their slender pedestals, which give them more elegant proportions. Late Neolithic examples of this class of chalices have been given in the first Volume of this work[2] and present a remarkable parallel both in shape and in their hand-polished surface to a type of vessel found in First Dynasty Tombs at Abydos.[3] The evidence of the Knossian strata shows that they can be traced back to within the borders of the Middle Neolithic.

Proto-Egyptian copper 'Chalices'.

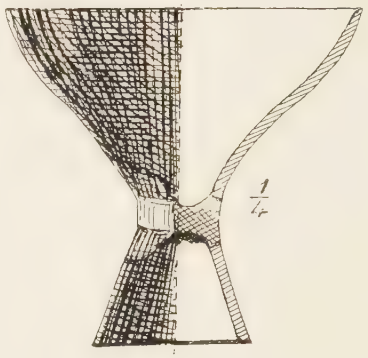


Fig. 4. Late Neolithic 'Chalice' with Burnished Striations (restored), Stratum β.

The band round the middle of Fig. 4 and, still more, the well-defined 'cordon' round Fig. 3, *m*, are suggestive of metal-work and in this connexion the appearance of a small proto-dynastic copper type[4] closely resembling the latter form is of exceptional interest (see inset to note 4). It looks as if the metal type may have had a very early history in the Nile Valley.

Miniature votive bowl.

The tiny bowl with ear-handles, shown natural size in Fig. 5, *g*, resembling specimens previously described,[5] must be assigned to the same votive class as the miniature platters—in that case actually found with a squatting clay image—from a Late Neolithic stratum at Phaestos. Two broken clay 'idols' and fragments of two others were found in the present deposit. That of which the back view is given in Fig. 3, *bb*, was unfortunately much mutilated, but enough remains to show that it corresponds with the 'squatting' type of female figurine given in the inset, belonging to a class that has Anatolian affinities.[6] Fig. 3, *cc*, of the same pale terra-cotta as the former specimen, has lost its upper part, but has a special interest as marking the transition from the

Clay idols.

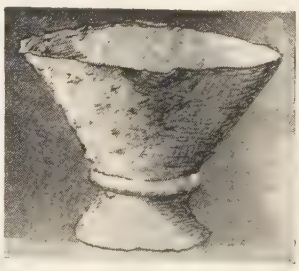
[1] Other fragmentary specimens were found in 1913 in a similar medium beneath the pavement on the N. border of the Central Court.

[2] P. 58, Fig. 17. There called 'Sub-Neolithic'.

[3] See *Knossos, Report*, 1904, pp. 23, 24. To Petrie the Abydos type was non-Egyptian.

[4] *Royal Tombs*, ii, Pl. IX, A (Tomb of Khasekhemui: two examples, about 8 cm. high, as Fig. 3, *m*). (See inset to right.)

[5] *P. of M.*, i, p. 39, Fig. 6, 6, 7. With handles of the perforated horizontal type.



[6] *Ib.*, p. 46, Fig. 12, 3 *a*, *b*, *c*: see too, for better representation of details, Fig. 13, 3, and compare the Adalian specimen Fig. 13, 17.

crouching and squatting types of Neolithic tradition to the more extended posture of later usage,[1] Minoan and Cycladic, though the legs are here mere stumps. It is still pronouncedly steatopygous and symptoms of approaching maternity are clearly indicated. It is possible that the punctuated decoration was suggested by the practice of tattooing. The original height of this figurine would have been about 6 cm., but two fragments from this deposit, one showing the greater part of a hand, Fig. 3, *aa*, the other a piece of the wrist (from another figure but on the same scale), prove that much larger clay images must have existed. The fingers are stumped off, but the breadth of the hand is about 4 cm. The open palm seen here proves that the 'adoring' type of image such as we find it at Knossos in the Late Minoan shrine of the Double Axes and elsewhere[2] is an inheritance from Neolithic times. Fig. 3, *z*, is a rude animal's head, perhaps the Cretan short-horn.

Beads, bone implements, &c.

Beyond the perforated shells and an amulet described below, the only trace of personal ornaments was supplied by two beads, one made of a small black steatite disk (Fig. 5, *f*), the other 1·1 cm. in diameter, of a fine mottled stone, Fig. 5, *e*. The typical bone punch or awl with its knuckled butt (Fig. 3, *h*) recalls numerous similar specimens from Magazà, and the chisel-like bone instrument, Fig. 3, *g*, may have been used in smoothing the surface of pots. Womens' industry was illustrated by a clay spool[3] and numerous spindle-whorls of the same material,[4] one of them showing signs of pricked decoration. Sponge-like lumps of pumice-stone—such as are cast up by the sea on the neighbouring coast—were of frequent occurrence but further worn, as with scouring. Slate disks used for pot-stands were also found, at times in groups, on the floors.

Stone implements.

Besides the usual globular hammerstones and limestone mauls, mostly of round or oval contour, for crushing corn, about a dozen polished stone implements including broken specimens came to light in this area. The stone axes were, as usual in the Cretan Neolithic series, of two main types and of the usual materials, one thick and generally a good deal roughened at the butt as Fig. 3, *a* (greenstone), the other flatter and more triangular, as Fig. 3, *b* (serpentine). Part of a jadeite implement, apparently of the latter form, has a sharp, brilliantly polished edge. Fig. 3, *c*, of a hard schistose material may represent an adze, and *e* shows the cutting end of a jasper chisel. Together with other obsidian flakes, was the knife, Fig. 5, *a*,

Flake of transparent Obsidian, from Yali.

[1] A very similar figure with truncated legs was found at Palaikastro (in Candia Museum).

[2] See below, p. 337, Fig. 189, and p. 340, Fig. 193, and compare Fig. 63, p. 129.

[3] Resembling vol. i, Fig. 10, 2 with similar pricked decoration.

[4] Cf. vol. i, Fig. 10, 7-9.

with a finely chipped edge. Another flake, Fig. 5, *b*, was of a peculiar transparent quality such as is unknown in Melos and has now been traced to the small volcanic island of Yalì—'Glass Island'—between Nisyros and Kos.[1] It has a cutting edge which shows signs of use, but must have been sharp as a razor. A flake of rock crystal also occurred. Taking the stone implements as a whole it will be seen that no falling off is perceptible in the concluding Neolithic stage either as regards fabric or the choice of materials.

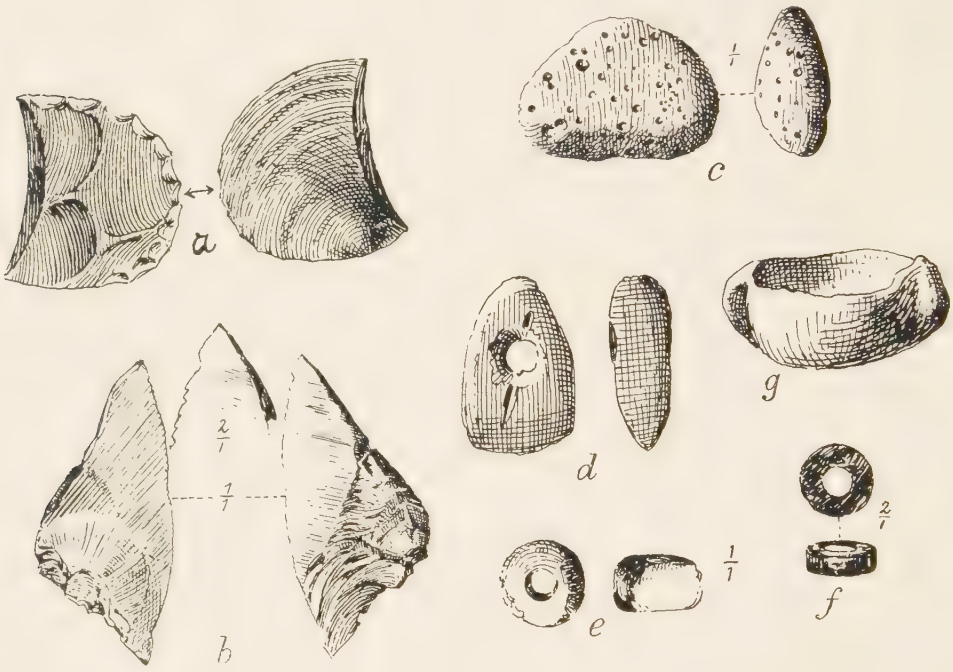


FIG. 5. SMALL OBJECTS FROM NEOLITHIC HOUSES. *a*. OBSIDIAN (MELOS) ($\frac{1}{2}$). *b*. OBSIDIAN (YALÌ). *c*. DARK STONE. *d*, *e*. BLACK STEATITE. *f*. MARBLED STONE. *g*. TERRACOTTA. ($\frac{1}{1}$, EXCEPT WHERE SPECIFIED.)

Copper Axe.

As regards implements, however, the surprise of the Excavation was the discovery of a copper axe (Fig. 3, *f*) of a simple flat form on the pebble floor of a 'store cell' of House A, in a pure Neolithic element, in company with the handled pot, Fig. 3, *r*, and 25 cm. beneath the floor of the upper, equally Neolithic, stratum (*β*). A similar pot, having by it part of a red jasper chisel, was found in the adjoining cell under the same stratigraphic conditions. That copper was worked in Crete at this time is highly improbable and it is more likely that the axe had reached the site of Knossos either

[1] See A. della Seta, *Rivista Archeologica Italiana di Atene*, Dicembre 1922, and Fig. 8. Flakes of this material were found in Kos in the Cave of Ἄσπρη Πέτρα. Dr. Xanthudides noticed similar examples in the early ossuary *tholoi* (*Vaulted Tombs of Mesarà*, transl. Droop, p. 105).

from Egypt or owing to some coast-wise drift of commerce from Cyprus, where copper implements seem to have been fabricated from a very remote period.

Amulet in form of Stone Axe.

In House B of the lower layer, near the hearth, was found a black steatite object, perforated evidently for suspension, in the shape of a miniature stone axe of the thicker variety. It was evidently worn as a charm, and we have here interesting evidence that the use of such for talismanic purposes goes back in Crete into the Stone Age itself. In this case therefore the practice cannot have been due to any mystery regarding the origin of these objects such as led them in the Age of Metals to be regarded as 'thunder-stones'. Of stone double axes there is no trace in the Cretan Neolithic deposits and the first evidence of any weapon of that form is supplied by the miniature copper examples of E. M. II date from a tomb excavated at Mochlos. Both the type and the particular form of cult seem to have reached the Island from the Anatolian side. It is always possible, however, that beliefs attaching to the earlier stone axes may have been assimilated in the later cult.

Amuletic pebble.

A curious object (Fig. 5, *c*) found near the same spot in House B as the miniature axe pendant may also have served an amuletic purpose. It is a small, naturally shaped, slightly rolled pebble of a dark stone that has been decorated on all its faces with minute borings, originally filled with chalky inlay, thus resembling the pricked ornament of the pottery. There also occurred in different parts of the area three glittering pieces of specular iron ore which may also have been preserved as charms.

Stone mace-heads.

Two fragmentary mace-heads came to light, both in stratum *β*. One of these, Fig. 3, *k*, shows a rapidly expanding outline, recalling certain proto-Egyptian types: it is of white marble, a non-Cretan material, resembling that of the Cycladic marble figurines. The other mace-head, Fig. 3, *l*, is of a variegated stone with bluish, quartzite veins, shot with ore, and seems to be a variety of the same stone as that represented by the large vase fragment described below, with which it is compared in Fig. 7, *a* 3.

Fragments of stone vessels.

Most important of all among the objects found in this late Neolithic deposit were the fragments of stone vessels which occurred in both layers. In stratum *α*, near the floor level of the chamber of House A, marked 15, occurred the base of a small mottled limestone pot showing clear traces of turning within, due to a tubular drill, and enough of the sides to show that they were quite vertical. As conjecturally restored[1] (Fig. 6) it closely resembles.

Proto-Egyptian type.

[1] It may, of course, have been higher than as here restored. The waved band so characteristic of this class of vessel has often disappeared by the proto-dynastic Age (compare upright alabaster types, *R. Tombs*, ii, Pl. LI H).

though on a smaller scale than is usual, a typical class of late pre-dynastic and proto-dynastic Egyptian pots which during the early historic period were gradually rendered more elegant by the slight incurving of their sides.

Fragment of large bowl.

In the well-preserved N.E. angle of the upper structure were also found two fragments of stone vessels executed in hard stones of variegated texture. The larger of these, Fig. 7, *a* 1, 2, belonged to a vessel of considerable size, having a circumference of 11·8 m. ($46\frac{1}{2}$ in.). Its greatest thickness is 5 cm. and this gradually decreases to 3 cm. at a point where the section appears of a tubular perforation, 2·5 cm. in diam. The original vessel may have been a massive bowl with a round hole at its bottom, like the basin of a modern wash-stand; its exact form, however, must be as much a matter of conjecture as the purpose that it may have served. The stone itself seems to be essentially the same as that used for the mace-head, Fig. 3, *l*, though the quartzite veins are here white. In this case, too, particles of ore are visible which in places display a glittering surface recalling iron pyrites.

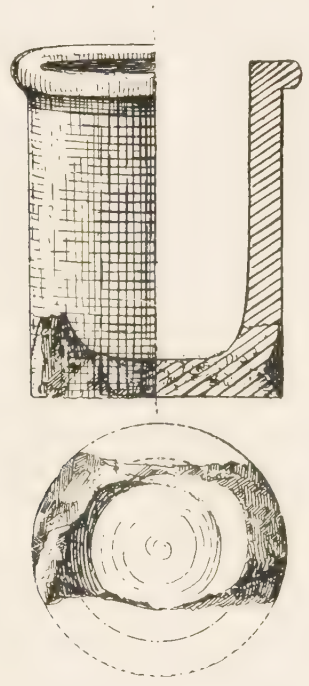


FIG. 6. LIMESTONE POT (RESTORED ($\frac{7}{8}$)) AND INSIDE VIEW.

The lesser fragment, Fig. 7, *c*, belongs to a much smaller vessel and is only 1·3 to 1·5 cm. thick. To judge from the section preserved it may have been part of a bowl of the early flat collared class. The main material is dark, containing what looks like iron ore, and well contrasting with the pale green veins that traverse it horizontally. From these examples we see that the research for variegated and beautiful stones as the material of vases, so characteristic of the prehistoric Egyptian lapidaries, is already exemplified in Crete by the closing Neolithic period.

Plan of Neolithic Houses.

With the exception of the wall foundations at the N.E. corner of the excavated area which, as the plan, Fig. 8, shows, were superposed on the earlier lines at a slightly different angle, the main structural remains belong to the earlier of the two Neolithic strata. The whole forms an agglomeration of more than one building, with spurs traceable in places running out from the border lines, which imply an uninterrupted extension in certain directions. We have here indeed a microcosm of the town of Knossos as it existed at the close of the Neolithic Age.

It is clear, however, that the greater part of the area was occupied by one principal dwelling (A) and part of another (B) with their dependences. It looks as if the nucleus of A had been a homestead of the 'but and ben' type with the entrance on the East leading into the main room containing the hearth, set here against the back wall, and a smaller back-room where

'But and Ben' nucleus of House A.

FIG. 7. *a*, *c*, FRAGMENTS OF NEOLITHIC STONE VESSELS; *b*, FRAGMENT OF STONE MACE (*a* 1, *a* 2, $\frac{1}{2}$ scale, *a* 3, *b*, *c* $\frac{1}{1}$).

were found some large pots and a group of pot-stands. But there is visible a considerable development of this simple plan in the appearance of smaller rooms, opening out of the main chambers and, along the West and South-West borders of the house, which can be best described as a series of store cells. Of the house beyond, (B), which seems to have been partly built on to A, part of its main room with a free-standing hearth has been brought out. It shows, however, the same cellular attachments as A, nor is it clear in one or two cases to which house they belonged. That they were used for storage may be inferred from the groups of large pots found in almost

Store cells.

all cases on the floors, which were generally provided with a pebble pavement. As a rule they show no door opening, and access must have been gained above the stone-work that forms the base of the walls by means of narrow openings through the sun-dried brick construction which probably rested on this stone footing. Access may also have been obtained by means of a back passage between House A and the other, of which there seem to be traces. Two small walled spaces on the N.W. border showed exterior door openings and may have been used for beasts.[1]

This accretion of cells to the main buildings bears some analogy to the supplementary cists that are attached to the early beehive tombs. On the other hand the flanking of these Neolithic houses with a system of small store-rooms seems to anticipate the Magazines of later Palatial structures.

Flooring of rooms.

The lower house floors were covered like those of the upper with pavements of clay and red earth faced with clay plaster. As is usual in Cretan cottages of the present day, this flooring often runs under the party walls. On the other hand, in the case of House A, the Northern border of this flooring, which was well preserved, made it possible to trace a section of the outer wall that had been grubbed up, probably to supply material for the later building. Otherwise the house-walls could generally be traced, when the larger stones were wanting, by the bedding of made clay and small pebbles.

Rectangular plan.

The whole plan, like that illustrated in a more imperfect way by the Neolithic house at Magazà,[2] will be seen to be roughly rectangular, as in the case of the typical Minoan houses from the earliest times (Fig. 8 A).

Appearance of fixed hearths.

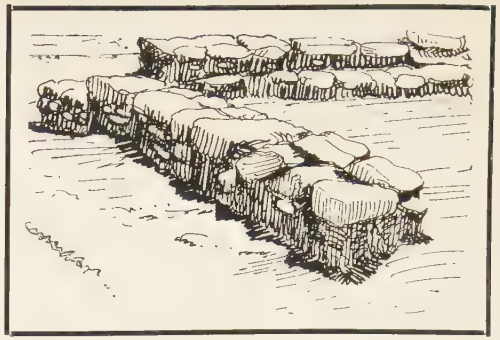
In one important feature of their arrangement, however, these Late Neolithic houses present a marked contrast to their Minoan successors. This is the appearance in both houses of fixed hearths, either free-standing as in House B or built against a back wall as in A. In the latter case the hearth was roughly square,[3] built of clay and small stones with larger stones at its corners, raised 20–25 cm. above the floor-level, while the purpose of the structure was made clearly evident by the layer of charcoal and ashes that still rested on the surface (Fig. 8 B, 2). The free-standing hearth of House B was of the same general structure, but slightly larger and somewhat over a metre square (Fig. 8 B, 1).[4] Above and round it lay a good deal of burnt material, and near it the large cooking-pot described above.

[1] Dr. Mackenzie suggests that space 5 which has an exceptionally well-compacted floor and somewhat hollowed surface may have been a small light-well.

[2] R. M. Dawkins, *B. S. A.*, xi, p. 263 seqq. and Fig. 2. See, too, D. Mackenzie, *Cretan Palaces*, *B. S. A.*, xiv, p. 360 seqq., and cf. vol. i, p. 32.

[3] Its width was *c.* 90 cm.; its E. side 70 cm. and N. side 80 cm.

[4] Its E. side was 1·10 m. wide; N. and W. *c.* 1 m.; and S. *c.* 1·10 m. The surface was raised 20–22 cm. above the floor.



UPPER STRUCTURES PARTLY SUPERIMPOSED E. OF A.

HOUSE A
HOUSE B
HEARTH
HEARTH
STONE VASE FRAGMENTS STRATUM β
HAND OF LARGE CLAY IDOL
LARGE POTS AND PANS
POT STANDS
STONE IMPLEMENTS
CHARCOAL
STONE AXE
POT STAND
LARGE POT AND STONE AXE
BASE OF LIMESTONE POT
ENTRANCE ?
LARGE POTS
LARGE POTS
LARGE POT AND COPPER CELT
LARGE POTS AND JASPER CHISEL
POT
CLAY IDOL (bb)
11·75 FROM SOUTH LINE OF CENTRAL COURT
LINE OF PALACE FACADE
BASE OF WALLS EARLIER STRATUM (α)
WALL LINES RESTORED EARLIER STRATUM (α)
WALL LINES STRATUM (β)
PEBBLE FLOORS
NUMBERS REFER TO BASKET NUMBERS IN REFERENCE STORE
SCALE OF METRES
1 5 0 1 2 3 4 5

FIG. 8 A. PLAN OF LATE NEOLITHIC HOUSES.

Contrast with Minoan usage of movable hearths.

Hitherto no evidence has been brought to light of a fixed internal hearth in Crete, down at least to the post-palatial period.[1] On the other hand, at any rate from the beginning of the Middle Minoan Age, movable tripod hearths of clay and plaster (also used as altars)[2] occur in plenty, supplemented for warming purposes by chafing-pans analogous to the Italian *scaldini*.

Fixed hearths: a mainland tradition.

The fixed open hearth itself is traditional in Asia Minor and North Syria, as may be seen, for instance, from the examples supplied by Troy[3] and Sindjirli,[4] where they are symmetrically arranged away from the walls in the middle or at one end of a hall. It may be inferred that this corresponded with a usage handed on from more primitive times. It would even appear probable that the particular Trojan type of a round central hearth had also an Aegean extension. The recent excavations of Mr. Blegen for the American School at Zygouriès, near Kleonai, have in fact brought to light a rectangular house of the 'but and ben' kind belonging to an advanced Early Helladic stage, with a round hearth in the middle of its larger inner room.[5] Since, as we now know, the Early Helladic culture in the Peloponnese and Attica is really an offshoot of the Early Cycladic type, which had intruded itself there on a Neolithic province that extends to Thessaly and other parts of the Northern Mainland of Greece, we are justified, provisionally at least, in referring back the origin of the fixed central hearth of Zygouriès to the same Aegean source as the intrusive civilization to which it belongs.

There is clear evidence, indeed, of the existence of fixed hearths in the Late Neolithic culture of this Western province as it appears at Dimini in Thessaly and elsewhere but there we see it in a simpler form—the hearths, round and square, being placed asymmetrically, either free-standing or against the back walls of the rooms.[6]

[1] A rough stone erection across the corner of a section of the Megaron of the Little Palace as rearranged by the later occupants (L. M. III *b*) may have had a culinary purpose, and a similar phenomenon was observed in 1923 in a corner of a room of Reoccupation date belonging to a structure S.W. of the House of the Frescoes.

[2] See below, p. 302, Fig. 175, and p. 337, Fig. 189.

[3] Dörpfeld, *Troja und Ilion*, i, p. 81, Fig. 23, II *a*.

[4] *Ausgrabungen von Sendschirli*, iv, pp. 256, 257, Figs. 164-6; p. 296, Fig. 205 A and Pl. XLIX, in K 2 round and J 3 square.

[5] See C. Blegen, *Zygouriès*.

[6] Tsountas, Προϊστορικαὶ Ἀκροπόλεις Διμηνίου καὶ Σέσκλου, p. 88 seqq. and Pl. II. Wace and Thompson, *Prehistoric Thessaly*, p. 79 seqq. Similar house-plans were also found at Sesklo. The Megara belong to Tsountas' 'Second Neolithic Period', which is probably rather 'Chalcolithic'. A Megaron of the 'but and ben' type (p. 60, Fig. 11; W. and T. p. 81, Fig. 39, B) shows a cross-wall with more or less rectangular hearths against it on

It is important to observe that there is no evidence of the persistence of the round central hearth in connexion with a square Megaron during the Middle Helladic stage. That culture in fact largely arose from a fusion with intrusive 'Minyan' elements from beyond the Gulf, and the rectangular house-type itself was mostly displaced, as far as can be learnt from the archaeological data before us, by houses of apsidal form. The appearance of the 'isolated' Megara of Mycenae and Tiryns, following the symmetrical Trojan type, would thus seem to have been due to external influence and to stand in an Anatolian connexion.

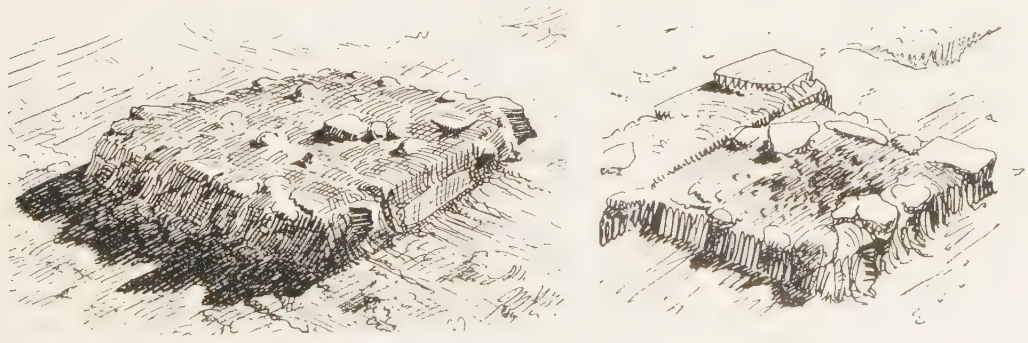
The fact that *ab antiquo* the use of fixed internal hearths had, as it would thus seem, been as traditional in Crete—and we may suppose the Cyclades too—as it was in the Mainland regions on either side of the Aegean, makes the adoption in Minoan times of the other usage the more significant. The fixed hearths, which point to the severer conditions of a continental climate, were the natural inheritance of those who, coming in from the Anatolian side, seem to have first peopled the island—an inheritance, as we have seen, handed down at least to the close of the Neolithic Age. Why then was it abandoned? Why, even in the case of buildings of the Early Minoan Age, such as those of Vasilikì, are the traces of such a practice already lost?

Inheritance of continental climate.

It seems reasonable to conclude that in the introduction of movable in place of fixed hearths—itself made possible by the milder, marine climate of the Island—we may recognize a further manifestation of the strong Southern influence of which we have already an indication in the Late Neolithic stone vessels.

Introduction of movable Hearths due to Southern influence.

both sides. The narrow inner compartment here bears an analogy to the back room of the Knossian house. On these 'but and ben' Thessalian houses and the central hearth see Mackenzie, *Cretan Palaces*, iv (*B. S. A.*, xiv, p. 374 seqq.). He lays stress on the influence of the fixed hearth in isolating the principal room or 'Megaron'.



1 2

FIG. 8 B. HEARTHS OF LATE NEOLITHIC HOUSES, KNOSSOS (1, HOUSE B; 2, HOUSE A).

§ 34. Impulse from the South—New Lights on Early Nilotic Connexions: Libyan and Egyptian Factors.

Early Influence from Delta; Its high Pre-dynastic Civilization; Tehenu, 'the Olive-land'—source of Glazeware; Early Nilotic race, Proto-Libyan; Exquisite Ivories of Hierakonpolis; Nilotic Vessels; Ship Ensign, also Aegean; Evidences of Sumerian influence on Nile Valley; The Gebel-el-'Arak Knife-handle; Semite invasions; Crete thus indirectly influenced by East; Direct indebtedness of Minoans to pre-dynastic and proto-dynastic Egypt; The Double Axe Symbol in Egypt; Pre-dynastic Stone Vessels at Knossos; 'Libyan' figurines—mantled types; Suggested influence of Libyan hair-dressing—the Side-locks; 'Penistasche' or 'Libyan Sheath', compared with Minoan usage; Female use of 'Sheaths'—Libyan and Minoan; Beehive Tombs of Mesarà answer to widely diffused Libyan type—distinctive Vestibules; Connected with Mapalia; Prevailing early Cretan house-type Square; Were Mesarà tholoi related to 'Mycenaean'? Parallels in structure —'humped' lintels; Circular Well-House at Arkhanes of same date as Mycenae tholoi; Stone palettes and vessels of Nilotic type from Mesarà tholoi; Was there a Libyan element in S. Crete? Shell inlay showing Negroized type; Pre-dynastic draught-boards and early Sistrum; Cult parallels—Neith and Diktynna; Early Nilotic bows and chisel-edged arrows; Shield of Neith resembles Minoan; 'Palladium' and Minoan Goddess; Direct apprenticeship of Minoan Craftsmen; Varied indebtedness to early Egypt; Early Minoan ivory seal showing Lion guarding body in contracted attitude of dead; Fresh examples of Early Kingdom Stone Vessels from Knossos; Carinated bowls and 'Moustache cup'; Knossos a staple of early dynastic Egypt.

By what agencies then at the close of the Cretan Neolithic phase did the new impulse from the South reach the Island, that did so much to influence the whole later course of its culture? In view of the new light thrown on these questions by recent finds on the site of Knossos and elsewhere it is necessary, at the risk of some repetition and even digression, to revert to this question, which has really a fundamental bearing on the origins of European civilization.

Early influence from the Delta.

High predynastic civilization.

Cumulative evidence—some of which has been for the first time set forth in the earlier Sections of this work—shows that the source of this influence must be sought beyond the Libyan Sea, principally, no doubt, in its incipient stage, among the primitive population of the Nile Delta, somewhat later, in the united Egypt of the earliest Dynasties. The importance of the old Nilotic factor in early Cretan civilization has, indeed, been greatly enhanced by the acute researches of Professor Newberry in the proto-historic field, itself so richly illustrated by the discoveries of De Morgan, Petrie, Quibell, Reisner, and others at Tukh, El Amra, Naqada, Hierakonpolis, and elsewhere. Already, from a time before the days of Mena, we are now able to survey the remarkably carved palettes, the artistic ivory sculptures, the finely cut vases of variegated stone, the glazed ware and other fabrics indicative of a high stage of civilization, produced by the men of the 'Olive-land' or Tehenu[1] of the Western Delta. It is interesting to note not only that the fabric of glazeware and even of glass inlays was already carried to considerable perfection by this early Nilotic race but that the very name for such in historic Egypt, *tehent*, preserves, as Professor Newberry has pointed out, a record of their source, analogous to the use of the word 'china' among ourselves.[2]

The 'Olive-land' source of glazeware.

Libyan characteristics of early Nilotic race.

The Libyan affinities of this race are clearly indicated; a Libyan population, indeed, survived to the last in the Western Delta, the Egyptian language itself being unknown to the inhabitants. Sais, the principal centre of their old dominion, was the seat of the Goddess Neith, whose cult in historic times was so widely spread among the Libyan tribes, and the most distinctive article of their attire was the 'Libyan sheath' or *penistasche*.[3] Of their general physical type the best idea may be obtained from the exquisitely carved ivory figures of Hierakonpolis,[4] which at the same time reveal the

[1] For the explanation of the name see Newberry, *Ta Tehenu—'Olive Land'* (*Ancient Egypt*, 1915, p. 97 seqq.). On a slate palette in the Cairo Museum (see, too, De Morgan, *Recherches sur les origines de l'Égypte*, 1897, p. 264 and Pl. III) the national Libyan 'throwing-stick' symbol appears beside the group of olive-trees indicating the name of the country. Ta Tehenu or 'Olive-land' was afterwards extended to the Libyan country West of Egypt, including the Oases. Newberry, however, considered that in early times it was taken to embrace the Mareotis Lake region, the country West of the Canopic branch of the Nile besides a large part of the Delta.

[2] *Egypt as a field of Anthropological Research.* Address to Section H, Brit. Ass., 1923, p. 13.

[3] See below, pp. 34, 35, and Fig. 9, *a*.

[4] See *Hierakonpolis*, *Eg. Research Acct.*, Pt. I, 1900 (Mr. J. E. Quibell's discoveries in 1898, with notes by Petrie). The ivories themselves at present form part of the treasures of the Ashmolean Museum at Oxford, where several re-constitutions have been made by Mr. E. T. Leeds which do not appear in the original publication.

Exquisite ivory carvings of Hierakonpolis.

extraordinary artistic development attained by craftsmen of this old indigenous stock in the late pre-dynastic epoch. It is not only for the purpose of general comparison with the later achievements of Minoan Art in the same material that it has been thought worth while to give some illustrative specimens of these in Fig. 9 and Suppl. Pl. I. For the evidence tends more and more to the conclusion that it is all part of the same story, and that, as already suggested, this gifted Nilotic race actually found a foothold on Cretan soil. There is indeed good warrant for concluding not only that there was a direct tradition with regard to many technical processes and cultural ideas, but that something of the inborn artistic spirit of the old Nilotic people may have been physically infused into the indigenous Cretan population. The choicest flowers of the Minoan civilization that was afterwards to arise may well be regarded as, in part at least, the result of this engrafting.

Of the examples shown [1] the male head (Fig. 9, *b* 1, 2) with the domed crown and short pointed beard, the youth of remarkably individual expression wearing the native 'sheath' (*a*), and the cloaked figure (*e*) present characteristic ethnic traits. The side-locks of the women are noteworthy, and their waved hair, delineated with infinite delicacy in *g*, anticipates the most modern fashion. Similar *ondulation* also characterizes the tresses of the most beautiful of the Minoan ivories—the Child God, to be reproduced in the Third Volume of this work. The modelling of all the figures is excellent, and the pose of *e* combines dignity and grace. The collared hound recalls the celebrity of the Libyan hunting dogs in historic Egypt, where one at least is certainly found with a name still preserved in modern Berber.[2] Various objects, moreover, show processional rows both of human figures and animals which have a long later history in Crete as well as the Nile Valley. The processional animals reappear on ivory seals of Early Minoan date from the ossuary *tholoi* of Mesarà,[3] the Libyan connexions of which are set forth below.

Traditions preserved in Minoan Art.

Something has already been said of the progress of this pre-dynastic Egyptian race in navigation and of the existence of the 'Great Port' for

[1] Fig. 9, *a* is published, *op. cit.*, Pl. X. 2, minus the face, while only the head of the dog is represented (Pl. XII. 7). *f* 1 and 2 (apparently parts of the same figure), and *g* and *h*, appear here for the first time.

[2] On a stela of Antef I (XIth Dyn.) see especially R. Basset, *Les Chiens du Roi Antef*, in *Sphinx*, vol. i, 1897, p. 89 seqq. Antef's *abaker* is clearly the Berber, *abekkur* or *abaikur* = greyhound. Cf. Daressy, *R. T.* xi, 1889; *Remarques et notes*, § xviii, pp. 79–80; O. Bates, *Eastern Libyans*, pp. 80, 81. This Hierakonpolis dog (as others) is lop-eared, but a prick-eared hound occurs in a proto-Libyan connexion on the Gebel-el-'Arak handle (Suppl. Pl. xii, *b*, *c*). The Egyptian hieroglyphic type is also prick-eared and so is the early Cretan breed, e. g. *P. of M.*, i, p. 197, Fig. 145.

[3] E. g. *P. of M.*, i, p. 118, Fig. 87, 2 and 4 *b*.

FIG. 9 PRE-DYNASTIC (PROTO-LIBYAN) IVORIES FROM HIERAKONPOLIS: PROTO-LIBYAN ART.

Aegaean parallels to Early Nilotic Ensign.

Mediterranean traffic, probably near the Canopic mouth of the Nile.[1] Their vessels with curved hulls, slightly rising fore and aft, were the true descendants of the native papyrus boats, though they had developed into galleys with double ranks of oars and with two central cabins showing their respective Nome signs on poles with two streamers. It is a notable fact that the fish ensign seen on one of these (Fig. 10, *a*) reappears with similar accessories on a whole group of Cycladic rowing galleys (Fig. 10, *b*, *c*), and though these belong to a considerably later date the correspondence is such as to point to an original connexion.[2]

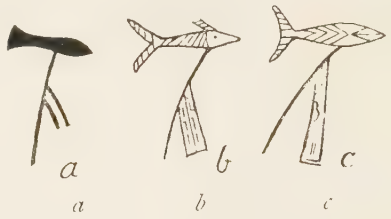


FIG. 10. FISH ENSIGNS. *a*, EARLY NILOTIC (NAQADA); *b*, *c*, CYCLADIC.

Intrusive vessels of Mesopotamian type.

It is characteristic, however, of the new influence which throughout the late predynastic period makes itself more and more perceptible, that a new and exotic type of vessel now begins to make its appearance. This is characterized by a straight hull with abruptly rising prow and stern, by a mast and, at times, as on a 'decorated' pot from Naqada (Suppl. Pl. XII, *e*), by a square sail. It is generally recognized that this new type had found its original home on the Euphrates and Tigris,[3] and we have here a link between this early Nilotic culture and that of the Sumerians. Another has been already recognized at Naqada itself in the remarkable correspondence between the original structure of the exterior walls of the royal tomb there, with their multiple bays surrounded by post-like projections of sun-dried bricks,[4] and the typical plans of Chaldaean and Assyrian monuments.

Evidences of Sumerian influence.

The early Egyptian stone maces, notably the fine ceremonial examples of Mena (Narmer) and of the 'Scorpion' King before him, evidence the same Sumerian relationship, the comparisons extending to such details as the rosettes formed of a central disk with leaf-shaped appendages which recur on the gourd-shaped gold vessel from the Treasure of Astrabad.[5] The style and

[1] See *P. of M.*, i, p. 292.

[2] See below, p. 241, and my Huxley Lecture, *Early Nilotic and Egyptian relations with Minoan Crete*, p. 7, Fig. 4 (*R. Anthr. Inst. Journ.*, 1925). For representations of the Cycladic vessels contemporary with E. M. III see Tsountas, Ἐφ. Ἀρχ., 1899, p. 90.

[3] G. Bénédite, *Fondation Piot; Monuments et Mémoires*, xxii, p. 9 seqq. and p. 32. W. Frankfort, *Studies in Early Pottery of the Near East*, i (*R. Anthr. Inst. Occasional Papers*, 1924, No. 6), p. 139 seqq. Charles Boreux, *Études de Nautique égyptienne*, i, p. 33 seqq. (*Mémoires, &c.*, 1924). See, too, my Huxley Lecture (*R. Anthr. Inst. Journ.*, 1925), p. 5.

[4] See J. de Morgan, *Recherches sur les origines de l'Égypte*, p. 157, Fig. 521 (Vue perspective), and pp. 254, 255, Figs. 853, 856.

[5] *Archaeologia*, vol. xxx (1844), Pl. III. 2; cf. M. Rostovtzeff, *The Sumerian Treasure of*

Influence of Chaldaean Art on Nile Valley.

even the minutest features of the bulls, as seen, for instance, on the fragment of prehistoric slate palette now in the Louvre,[1] are early Chaldaean. The *Ser* sheep with their wavy horns on another palette might have been almost literally taken from Sumerian shell panels or the votive tablets from Nippur. But the crowning proof of this influence, by whatever channels derived, has now been supplied by the ivory handle of a symmetrically chipped flint knife from Gebel-el-'Arak, on which, side by side with indigenous representations of men wearing the 'Libyan sheath', the hero Gilgames himself appears, in Sumerian guise, dompting two lions in the usual opposed attitudes (Suppl. Pl. XII, *b*).[2] On the other side (*h*) of this remarkable relic, moreover, an actual combat is depicted between the crews of vessels of the traditional and the exotic type (Suppl. Pl. XII, *a*), the arms visible being maces, clubs, and knives. The intruders here have shorn heads, while the others show long side-locks of the Libyan kind. But both wear the indigenous belt and 'Libyan sheath'.

Semite invasions.

Influences from the Syrian side account for the large Semitic element in the Egyptian language, and to a lesser extent this may explain similar affinities in that of the older, Libyan stock. The Hyksos invasion seems to have been anticipated at a very early date in the Eastern Delta; its divinity indeed, whose seat was at Busiris, and who holds the crook and whip afterwards taken over by Osiris, was in truth a Shepherd God.[3] One of the close parallels between the historic Egyptians and the Semites is supplied by the geographical use of the right and left hand.[4] As the Semite naturally turned to the East, *yamīn* = 'right' gave the name to the South-land, still Yemen. To the proto-Egyptian, looking up the Nile, the right, *ỉmn*, was the West. This forms the first element of Amenti,[5] the Western region, distinguished by the Libyan ostrich plume, but also the Land of the Departed.

The penetration with early Semitic linguistic elements, which in the above

Astrabad, Journ. of Eg. Archaeology, vol. vi, p. 15 seqq. This foliate rosette recurs on both the maces and on the gold plates of predynastic stone knives (cf. *op. cit.*, p. 15, Fig. 3; de Morgan, *Recherches sur les origines de l'Egypte* (1896), p. 115, Fig. 136; Capart, *Primitive Art in Egypt*, p. 71, Fig. 36, p. 72, Fig. 37, and p. 73, Fig. 38: Petrie, *Man* (1902), p. 161, Pl. L. 4; T. E. Peet, *Journ. Eg. Arch.*, ii, Pl. XIII.

[1] Heuzey, *Bull. de Corr. Hell.*, vi (1892), p. 307 seqq., and Pl. I. As M. Heuzey remarks, 'Ses membres épais aux musculatures découpées, sa tête forte, son encolure puissante et très remontée rappellent les taureaux des cylindres Chaldéens'.

[2] G. Bénédite. *Le Couteau de Gebel-el-'Arak* (*op. cit.*, p. 1 seqq.); Petrie, *Egypt and Mesopotamia* (*Anc. Egypt*, 1917, pp. 26, 37), and W. Frankfort, *op. cit.*, p. 122.

[3] K. Sethe, *Nachrichten d. k. Ges. d. Wissenschaften, Göttingen, Ph. Hist. Kl.*, 1922, p. 233.

[4] See Sethe, *op. cit.*, pp. 197, 198.

[5] *ỉmn-ty*.

Crete thus indirectly influenced by East.

case brought with it a parallel adaptation of ideas, could hardly have been without its effect on the development of Egyptian religion. In considering the religious indebtedness of Crete to Egypt we may therefore at times work back to original sources still farther to the East.

We have seen that in borrowings of figured representations it is certainly possible to trace this connexion, though there is nothing in Chaldaean art to compare with the ivory carvings of the Early Nilotic race. It has been shown above[1] that many designs on the proto-Egyptian class of cylinders, the Chaldaean derivation of which is undoubted, were taken over on to the Early Minoan seal-stones. Amongst such designs we find indeed a class of composite animal or human figures, the genesis of which is a natural outcome of the old 'cylinder style', where, often by a mere miscalculation of the engraver, the beginning and end of the subject overlap. Nor is it difficult to recognize fantastic reminiscences of Gilgames and Eabani. We see the Minotaur himself on his way to Crete,[2] but, if he reached the Island from the Delta, his starting-point was still the Euphrates.

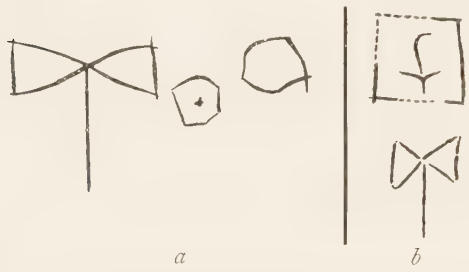


FIG. 11. THE DOUBLE AXE SYMBOL IN EARLY EGYPT: *a*, HIERAKONPOLIS; *b*, ABYDOS.

Direct indebtedness of Minoan Crete to pre-dynastic and proto-dynastic Egypt.

The conclusion, indeed, cannot be avoided that it was by this route, and not by any direct passage from the Syrian coast, that these and other Oriental ingredients found their way to Crete at a very early date. They were in fact ingredients that had been already assimilated and acclimatized on the Lower Nile. That there may have been at this and at all times some gradual drift from an Easterly direction along the South coast of Anatolia is probable enough, but the direct indebtedness of Crete to late pre-dynastic and proto-dynastic Egypt is now substantiated by a cumulative mass of evidence. A really surprising phenomenon, however, is the evidence of the early cult of the Double Axe in Egypt. The symbol is already found on a late pre-dynastic pot from Hierakonpolis,[3] and again, after the 'Royal House', on a fragment of a crystal vase from a First Dynasty tomb[4] (Fig. 11, *a*, *b*), while under the Fifth Dynasty there are two mentions of '*Khet*-priests of the Double Axes'.[5] The form in which the

Reflex action: the Double Axe in Egypt.

[1] Vol. i, pp. 68, 69, and cf. *Scripta Minoa*, p. 152 seqq. and Fig. 59, and *Further Discoveries of Cretan and Aegean Script* (*J. H. S.*, xvii, p. 362 seqq.).

[2] See *Further Discoveries, &c.* (*J. H. S.*, xvii, p. 371).

[3] *Hierakonpolis*, Pl. LXVII: Fragment of pot (in the Ashmolean Museum).

[4] Petrie, *Royal Tombs*, i, Pl. VII. 12.

[5] Professor Newberry, who first called attention to the evidence of the Double Axe cult in Egypt (*Liv. Anns. of Arch.*, 1908, p. 27 seqq.),

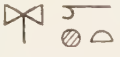
sacred symbol appears is that of the primitive linear class of Crete,[1] and of the early Palace blocks. The Double Axe itself is a weapon foreign to Egypt but in Minoan Crete it is at home, and votive examples already occurred in an E. M. II tomb at Mochlos.[2] In Crete, moreover, the sanctity of the Double Axe stands in a direct connexion with the deep-rooted 'Labrys' cult of Western Asia. We are almost bound therefore to assume that this cult was transplanted to Egyptian soil from one or other of these transmarine areas. The phenomenon with which we have here to deal is closely analogous to the appearance of the figure-of-eight shield as an emblem of the Delta Goddess Neith, to which attention is called below.[3] Considering, indeed, the early intimacy of Crete and Egypt it might be thought possible that we have here an instance of early reflex action from the Cretan side. It must still be borne in mind, however, that the weapon itself is of Asiatic origin, and that it was unknown in Crete in Neolithic times.

Its non-Egyptian Cretan and W. Asian source.

The extreme antiquity of the indigenous Nilotic or proto-Egyptian culture may be gathered not only from the remarkable perfection attained by the ivory and other sculptures of the late pre-dynastic epoch, such as those from Hierakonpolis above illustrated, but by the fact that the Calendar, dated by the rising of Sothis in the latitude of Memphis or the Southern Delta, begins in 4241 B. C.,[4] or some eight and a half centuries earlier than the accession of Mena and the beginning of the historic dynasties.

Great antiquity of Early Nilotic culture.

Evidence had already been brought forward in the earlier Sections of

has kindly supplied me with a detailed note on the subject. In the Fifth Dynasty we have two distinct mentions of a  'Khet-priest' of the Double Axes (*a*) Weshptah, Mariette, *Mastabas* D. 38. This monument is now in the National Museum at Copenhagen, No. 5129; (*b*) Zazamankh, Borchardt, *Abusir*, p. 120. Both these men bore very important official titles, and Weshptah was indeed Vizier of King Neferirkere. Newberry carefully examined the sign on the Copenhagen monument and found that it was undoubtedly the double axe. He further expresses his belief that there is a reference to the cult of the Double Axe on a Saite monument of the XXVIth Dynasty (*Z. für Aegyptologie*, xxxviii, p. 116). 'Here we have a priest of the Mountain deity and of the Double Axe.' Mr. Newberry adds that it is remarkable that Egyptian *Khet*-priests are only found with the cults of the 'Double Axe', the 'Mountain', the 'Thunderbolt', the 'Falcon', and the 'Swallow or Dove' (see *Liv. Anns.*, ii, 1909, p. 50 note). Weshptah bore the title of 'Khet-priest of the *Wr*-bird': possibly the Swallow (Newberry, *op. cit.*, ii, pp. 50, 51).

[1] *Scripta Minoa*, i, p. 195; Fig. 36, *d*, *e*, and see *Further Discoveries of Cretan and Aegean Script* (*J. H. S.*, xvii, p. 384, Table III). It recurs with the H sign on a miniature steatite lid of pre-Palace date from Knossos.

[2] Seager, *Excavs. in the Island of Mochlos*, p. 36 and Fig. 12 (T. II); *P. of M.*, i, p. 99, Fig. 70 and p. 101.

[3] See below, p. 48, Fig. 23, *f*.

[4] Meyer, *Aegyptische Chronologie*, p. 41 (within four years). Cf. Breasted, *Ancient Records of Egypt*, i, p. 30. Meyer places the accession of Mena at *c.* 3315 B. C.; Breasted at *c.* 3400.

Pre-dynastic stone vessels from Knossos.

this work showing that the contact of Crete with the Nile Valley goes back at least to the closing phase of this pre-dynastic period.[1] The operation, therefore, of this civilizing influence to which we may legitimately ascribe the transformation of the traditional Neolithic culture of the Island into the Early Minoan may be safely carried back to the middle of the Fourth Millennium before our era. The fragments of stone vases found in both strata of the Late Neolithic houses beneath the Central Court of the Palace have now afforded proof that at the epoch to which they belong the forms and

Fig. 12. Late Pre-dynastic Egyptian Bowl of Porphyry, Knossos (completed).

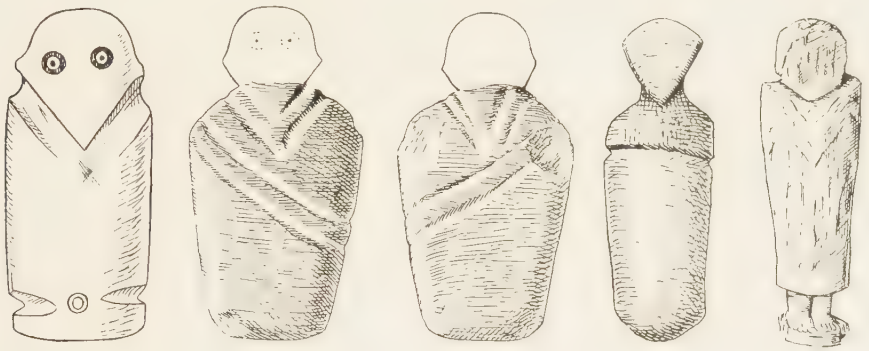
material of Egyptian vessels which at any rate carry on the prehistoric traditions were already supplying the models for Cretan lapidaries. To the actually imported objects of pre-dynastic fabric from the site of Knossos it is now possible to add a large fragment of a porphyry bowl (restored in Fig. 12) with a slightly flattened base presenting a flat, finely undercut collar and perforated roll handle. It was found in unstratified deposit N.W. of the Palace, where also occurred the lower part of a similar bowl of an identical material with a slightly raised base; to the same deposit belongs a piece of another vessel of brilliantly polished black porphyry with quartzite crystals, a kind of stone that recurs among the prehistoric vases of Naqada and Hierakonpolis. In the same context was also brought to light the lower part

[1] The latest Neolithic of Crete may overlap the beginning of the historic Egyptian dynasties.

of a smaller bowl showing a flat moulded base, and, internally, an incised ring due to the working of a tubular drill, by means of which the central core was cut out. The core had been broken away and the surface smoothed but not sufficiently to erase the ringed incision. (See Fig. 28, p. 59.)

Phase of these imported vases in Knossian series.

It is a noteworthy fact that numerous stone vessels, whole or fragmentary, belonging to the pre-dynastic or proto-dynastic class that came to light occurred not in the Palace itself[1] but sporadically, on its borders, principally the North-West. There can be little doubt that they represent part of the materials dumped down at the time when the top of the original 'Tell' was levelled away to secure a flat area for the construction of the



a *b* 1 *b* 2 *c* *d*

FIG. 13. COMPARATIVE EXAMPLES OF PRE-DYNASTIC AND CRETAN FIGURINES.
a, NAQADA; *b* 1, *b* 2, KNOSSOS; *c*, MESARÀ; *d*, HIERAKONPOLIS.

Palace as we know it. Their place, indeed, in the Knossian series now stands clearly defined by the remains of the early stone vessels found in the uppermost Neolithic stratum, though a certain proportion may be referred to the transitional, sub-Neolithic phase of the First Early Minoan Period. The more magnificent examples, such as the porphyry bowl, Fig. 12, can hardly have formed part of ordinary domestic furniture. They may well have served a religious function in some early residential seat.

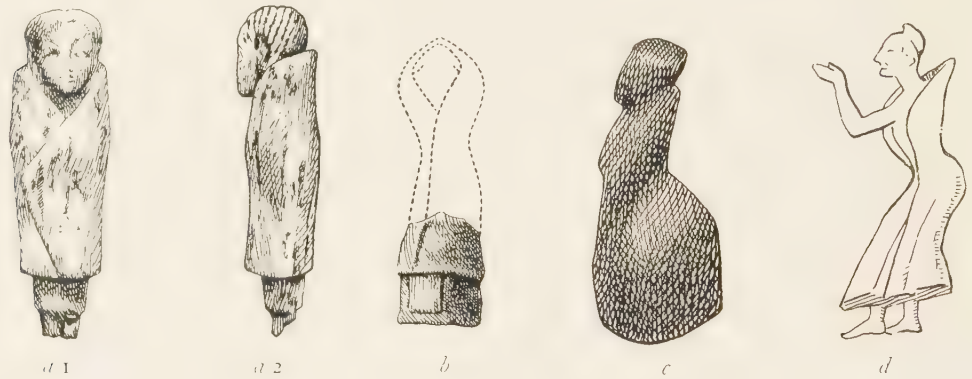
Varied Early Nilotic influences.

Although, so far as the Cretan evidence goes, the occurrence of the actual remains of this early Nilotic class of stone vessels has been confined to the site of Knossos, it has been already shown that certain forms of Early Minoan vases of indigenous materials also go back to pre-dynastic Egyptian

[1] In one exceptional case a fragment was found embedded in a Palace wall (*P. of M.*, i, p. 86, Fig. 55 *b*). The syenite bowl beneath the S. Propylaeum (*op. cit.*, p. 67, Fig. 31) lay in what we now know to have been made earth. It is at the same time clear that such hard stone vessels long survived in use. They thus supplied the prototypes of certain carinated clay bowls of M. M. I date (*P. of M.*, i, p. 178, Fig. 127, *f*). A small stone jar of pre-dynastic form occurred in a Mycenae tomb (Athens Mus., No. 1), and fragments of a bowl in a Mycenaean deposit at Asinê.

models.[1] Attention has been also called to the remarkable coincidences in early burial customs and to the discovery in the primitive *tholoi* of Mesarà of idols or human figurines entirely divergent in type from the old Neolithic class but identical with those found in prehistoric tombs at Naqada and elsewhere[2] and reproducing the domed head and small pointed beard of the primitive Nilotic race. We recognize, indeed, the same figures in a more artistic shape among the pre-dynastic ivories. An imperfect specimen of a limestone figurine obtained by me during an early visit to the site of Knossos (Fig. 13, *b* 1, *b* 2) clearly declares itself in the light of later finds as belonging to this 'Libyan' class. The comparative group, Fig. 13, shows not only a general parallelism between this figure, the head of which is there restored in outline, and others of this series, but the incised diagonal lines across the

'Libyan' figurines.



a 1 *a* 2 *b* *c* *d*

Fig. 14. Suggested Influence of Pre-dynastic Cloak on Minoan Female Costume.

body point to a prototype with some kind of cloak wrapped about it. Examples of such coverings are to be seen on several of the Hierakonpolis ivories, sometimes, as in Fig. 14, *a* 1, *a* 2, enveloping the arms as well as the body, sometimes with the two corners tied together, sometimes, as in Fig. 9, *e*, hanging, toga-like, from the right shoulder, a method preserved by the historic Libyans as seen on Egyptian monuments. This is foreign to Minoan usage, the upper part of the man's body, with few exceptions such as in the case of certain late sacerdotal types of Syrian derivation,[3] being left uniformly bare. As an ethnic characteristic indeed it is of great interest, since though the summer temperature of Crete is much below that of the opposite African coast (as distinguished from the Delta), the maximum cold on that side, as all those who know the Desert border are aware, is much higher. Even on the Soudan side of the Sahara rectangular 'plaids' are still worn to-day.

Libyan mantles.

[1] *P. of M.*, i, pp. 64, 65.

[2] See Comparative Table, *P. of M.*, i, p. 84, Fig. 52.

[3] See below, § 62. It may also be observed that in Late Minoan times a tunic seems to have been occasionally used, in conformity with Mainland 'Mycenaean' usage.

Suggested influence on Minoan female costume.

It is even possible that the mantled attire of women such as is seen among the pre-dynastic ivories of Hierakonpolis had a lasting influence on the Cretan women's dress. The natural effect of such a thick wrap, as shown in Fig. 14, *a* 1, *a* 2, is that it rests in a cope-like fashion behind the neck, and this feature is very clearly brought out in the Minoan female costume (Fig. 14, *d*) suggested by the designs on E. M. III seal-stones.[1] In the case of the Hierakonpolis figure there was clearly some kind of skirt beneath it, which in the figurine from a *tholos* tomb of Kumasa (Fig. 14, *c*) bulges out considerably. In a figurine from Petsofà, as restored in Fig. 14, *b*, we see the skirt and apron beneath the lower border of what seems to be a cloak of this kind. For convenience the Minoan woman fastened the cloak round the waist with a cord, sometimes ending in tassels, and seems to have made slits or even short sleeves for the arms, but it is difficult to avoid the conclusion that the Middle Minoan type of women's costume as seen at Petsofà[2] and on an M. M. II signet (Fig. 15[3]) is an offshoot of the same stock.[4] It has been suggested above that the later, flounced type of Minoan skirts may have been inspired by Syrian fashions.[5]

Fig. 15. Minoan Female Costume on M.M. II Signet.

As a pendant to this early Nilotic tradition in the Minoan female attire, it may be pointed out that a most distinctive feature in the arrangement of the Minoan men's hair, as we know it from the latter part of the Middle Minoan Age onwards, was certainly influenced by Libyan models. This is the side-lock falling down from in front of the ear over the breast or through the arm-pit, of which characteristic illustrations are given in Fig. 16, *e–h*.[6] In Fig. 16, *a–d*, are

[1] Cf. *P. of M.*, i, p. 124, Fig. 93 A, *b* 1, *c* 1.

[2] *P. of M.*, i, p. 152, Fig. 111, *a*. From Professor R. M. Dawkins's reconstitution (*B. S. A.*, ix, Pl. VIII).

[3] *P. of M.*, i, p. 277, Fig. 207, *k*.

[4] Professor J. L. Myres, *B. S. A.*, ix, pp. 367–70 and p. 382 seqq., saw in the Petsofà costume a separate bodice and skirt, and the termination of the decorative stripes at the girdle might suggest this conclusion. In *P. of M.*, i, p. 153, I accepted this view. But the chain of connexions given above is almost decisive in its significance. On the signet (Fig. 15), moreover, the mantle is clearly represented with an opening in front. Other Petsofà figures unquestionably show that a bottle-shaped skirt was worn below the waist, the upper part of the body being left bare.

[5] *P. of M.*, i, p. 197.

[6] Fig. 16. *a*. Kneeling Libyan, Beyr-el-Waly (Bates, *op. cit.*, p. 134, Fig. 43, by the kindness of L. Roeder). *b*. Tomb of Rameses II, Thebes (Bates, *op. cit.*, p. 130, Fig. 35). *c*. Captive Meshwesh; Lepsius, *Denkmäler*, &c., iii, 209; Bates, *op. cit.*, p. 125, Fig. 24 (XXth Dyn. Medinet Habu). *d*. Borchardt, *Ne-user-re*, Fig. 29; Bates, *op. cit.*, p. 129, Fig. 22. Vth Dyn.

Libyan influence on Minoan hair-dressing: the side-locks.

given Libyan parallels ranging from the Fifth to the Twentieth Dynasty. It will be seen, however, that while the Libyan men usually wore a short pointed beard, the Egyptian practice of clean shaving or depilation was general in Minoan Crete.

An as yet unpublished head of a male ivory figure from Hierakonpolis

FIG. 16. THE LIBYAN SIDE-LOCK AS A MINOAN FASHION (*a–d*, LIBYAN TYPES: *e–h*, MINOAN).

(Suppl. Pl. xii, *a*) and examples from Gebel-el-'Arak knife handle show that the Libyan side-lock dates from pre-dynastic times, though the Cretan comparisons must be rather the reflection of later intercourse with the tribes of the opposite Marmaric or Cyrenaic coast. Another feature in the Libyan male costume that has been long recognized as presenting a striking analogy to Minoan usage is shared both by the historic Libyans and those of the early pre-dynastic stock. This is the 'Libyan sheath' or *penistasche*, the envelope being in this case dependent from the front of the girdle,[1] while in the Minoan attire it seems to have been drawn upwards in a band or ligature which, starting from

'Libyan sheath' compared with Minoan usage.

[1] See above, p. 25, Fig. 9, *a*, and Suppl. Pl. I, i. Here, as in other early instances, the *scrotum* is visible on either side of the sheath, otherwise the arrangement is identical with that of Libyans on Egyptian monuments (e. g. Wilkinson, *Ancient Egyptians*, i (1878), p. 246, Fig. 76, upper row left, and cf. Bates, *op. cit.*, p. 133, Fig. 49).

the belt behind, passes between the thighs and is again attached to the belt in front.[1] (See Suppl. Pl. XIII.) In *c* and *d* to the right of the sheath is a kind of flounced sash. The Libyan arrangement seems to be a distinctly African feature, since, apart from some more general parallels to be found in the South of the Continent, a similar sheath is still in use in Togoland,[2] West of the Niger.

Libyan chieftains' wives with male sheaths.

But the analogy between the Libyan and Minoan usage can be carried a step farther. There is evidence that as a sign of dignity Libyan chieftains' wives were clad in men's costume, including this distinguishing article of male attire,[3] in much the same way as the Queens of Meroe are sometimes portrayed with beards. A more literal parallel, however, is supplied by the Minoan representations of the bull-grappling sports in which girls take part wearing, like the Libyan ladies, the distinguishing envelopes of the male organs.[4] There is reason to suppose that these female performers were regarded as of superior social standing. We have an indication of this, indeed, in the elaborate treatment of their hair, which contrasts with that of their male associates, and the gay ribbons that at times adorn it. The sports in which they engaged were in fact in honour of the great Minoan Goddess, and they seem to have taken a high place among her devotees.

Minoan girl acrobats in male attire.

Libyan affinities of beehive ossuaries of Mesarà.

Certain analogies in customs and costume may have been simply due to age-long intercourse between the Island and the opposite North African coasts. But the intimate character of the correspondence with which we have to deal in the case of the 'Libyanizing' images is emphasized by the fact that, like those of the primitive Nilotic folk at Naqada and elsewhere, they occur in a similar funereal relation. The particular source, moreover, of the Cretan figurines is a group of primitive ossuaries of the beehive type,

[1] The arrangement is well illustrated by some of the Petsofà figurines (e. g. *B. S. A.*, ix, Pl. X, 6). What Myres had in that case described as 'a loin-cloth represented by a pronounced roll of clay' was appositely compared by Dawkins (*op. cit.*, p. 387, note) to the 'Bantu sheath' and the *penistasche* of the pre-dynastic figures. See comparative examples, Suppl. Pl. XIII.

[2] F. von Luschan, *Globus*, lxxix, p. 197 seqq. The specimen there shown (Fig. 3) is from Moba in North Togo. The sheaths are of soft leather or woollen.

[3] For the Libyan practice see especially Oric Bates, *Eastern Libyans*, pp. 113, 114. The chiefs' women of the Sahurè reliefs (Vth Dyn.) are seen wearing the *penistasche* (cf. P. Newberry, *Ancient Egypt*, 1915, Pt. III, Fig. 4). One of the Medinet Habu tiles (XXth Dyn.) also shows a Libyan woman with the male kilt (Bates, *loc. cit.*). Newberry has pointed out that Queen Hatshepsut's clothing of herself in male attire may be explained by the Libyan origin of her mother, whom he identifies with Queen Ahmose, 'Mistress of the Temehu' (*Anc. Eg.*, 1915, pp. 101, 102). The practice of female impersonation of the male sex (like the converse usage) finds in its general aspect wide anthropological parallels.

[4] See Suppl. Pl. xiii.

mostly confined to the extensive plain of Mesarà and its borders, and which, both in their form and their geographical distribution,[1] best explain themselves by connexions beyond the Libyan Sea.

H. Onuphrios Deposit.

To a similar source must be certainly attributed a remarkable group of relics found, together with quantities of human bones, at Hagios Onuphrios near Phaestos, the Egyptian and 'possibly Libyan' affinities of which were pointed out by me as early as 1895.[2] Ten years later, the remains of primitive *tholos* ossuaries with similar contents were discovered by Professor Halbherr[3] and Dr. Paribeni[4] on the neighbouring site of Hagia Triada, and the excavation of a series of similar sepulchral monuments in the Mesarà region has since been carried out by Dr. Xanthudides, the recent publication of whose materials in Professor Droop's translation[5] has added much to our knowledge. That these ossuaries were of true beehive construction is shown not only by the inward slope of their walls of rough masonry from their base upwards, as far as preserved, but by the discovery, in the centre of the floor of the smaller *tholos* at Platanos, of the coping slab of the summit of the vault.[6] This *tholos*, which was about 10 metres in inner diameter, contained fallen stones amounting to 23 cubic metres, and, assuming the same equality between height and diameter that is observable at Mycenae, would have been 10 metres high. The dimensions of the larger *tholos* here, which is 13·10 metres in inner diameter, must in that case have been only slightly less than the 'Tomb of Clytemnestra'.

N. African parallels to Mesarà *tholoi*.

Recent investigations of this group of primitive sepulchral monuments have led me to a conclusion which throws a new light on the Libyan or early Nilotic affinities of their most characteristic contents. Several of them show an annexe consisting of ossuary cells of a well-known Minoan class. But in the simpler type, as seen at Kumasa,[7] there is visible, outside the low entrance on the East with its massive lintel block, a distinctive feature of great interest in the shape of a small walled enclosure or vestibule, a survival of an original pit entrance, which must have served some ritual purpose.[8]

Distinctive vestibule or 'Chapel'.

[1] A series of these *tholos* ossuaries is marked on the Map (opposite p. 71) by means of red circles. Cf. Xanthudides, *op. cit.*, Frontispiece.

[2] *Sepulchral Deposit of H. Onuphrios*, printed as a supplement to *Cretan Photographs, &c.*, Quaritch, 1895 (p. 105 seqq.). For comparisons of stone vases see p. 116 seqq.

[3] *Memorie del R. Istituto Lombardo*, xxi (1905), p. 248 seqq, Pls. VIII–XI.

[4] *Mon. Ant.*, xiv (1904), p. 678 seqq., and cf. *P. of M.*, i, p. 107, Fig. 75.

[5] *The Vaulted Tombs of Mesarà*, Liverpool Univ. Press, 1924. In 1923 and 1924 I explored most of these in company with Dr. Mackenzie and Mr. Piet de Jong.

[6] *Op. cit.*, p. 91, and cf. Karo, *Arch. Anz.*, 1916, p. 155. The block had a hole at one end to facilitate lifting.

[7] See Fig. 17, *d* 1–3, and Fig. 19, *b*.

[8] The enclosure must have been entered from above.

It can be shown that not only has this general type of beehive chamber used for common sepulture a wide distribution throughout a large African region occupied in ancient times by tribes of Libyan stock, but that there are traces, in a rudimentary form, of a similar original disposition of the entrance.

Those of 'Seal Island'.

The remains of several *tholoi* of this kind were observed by Oric Bates,[1] who first put together the Libyan evidence about such monuments, at Seal Island in the Gulf of Bombah, immediately opposite the Southern promontory of Crete, and which, under its older name of Plataea, was noteworthy as the first stepping-off station of the Greek colonists from Thera on their way to Cyrene.[2] In this case the vaults were clearly family graves and contained numerous cists with contracted burials, while the doorway, which was blocked by a slab on its inner side, seems to have been used as a separate ritual compartment (see Fig. 17, *b*, *c*).[3]

Other Libyan *tholoi*.

The base of a somewhat analogous *tholos* was found in the desert East of Hierakonpolis,[4] where, as in some other cases, the outer line of the circle was formed of orthostatic slabs. Still farther up the Nile, amongst the Middle Nubians, or 'C group',—recognized by Bates as Libyan[5]—in cemeteries dating from the Sixth to the Eighteenth Dynasty we find an interesting differentiation of the same root type (Fig. 17, *a*).[6] The actual doorway has here disappeared, but the entrance enclosure survives as a

[1] *The Eastern Libyans* (Macmillans, 1914), p. 248 and note 2: from notes made during a brief visit in 1909. He had no opportunity of making even exploratory excavations. Bates's scholarly monograph on the Eastern Libyans published at the beginning of the Great War is a treasury of all that concerns the subject. His recent death is an irreparable loss, and I can only here express my great indebtedness to his work.

[2] Herodotus, iv. 157. Burdah or Bombah, sometimes identified with Plataea, is, as Bates points out (*op. cit.*, p. 5 and p. 229, n. 8), an uninhabitable rock. He notes that Seal Island is still a favourite resort of Greek sponge-fishers. It is low and flat 'and suitable to some extent for human occupation'. Since, however, this part of the Libyan coast, like the opposite coasts of Central Crete, has sunk considerably since the date of the Greek colonization, it may have possessed an appreciably larger area at that time. The English name for the island, marking it as a special resort of seals, recalls the tradition of the island where Proteus fed his herds, though in the *Odyssey* (iv. 354, 355) that was 'over against Egypt'. The next harbour E. on the Libyan coast mentioned by Herodotus (iv. 169) was indeed the 'harbour of Menelaos'. As Dr. R. W. Macan justly remarks (*Herodotus*, vol. i, p. 122, n. 2), 'the name Menelaos suggests a tradition that would carry the acquaintance of the Hellenes with Libya back into Heroic times'. See below, p. 89.

[3] Bates, *op. cit.*, p. 248, Fig. 93. The outer wall slopes inwards from its base as in the case of the Mesarà *tholoi*.

[4] J. de Morgan, *Recherches sur les origines de l'Égypte* (1896), p. 239, Fig. 598. At Gebel-Genamish, E. of Edfu. The sketch of this by E. Legrain (misrepresented by the engraver) shows a circle of orthostats and an entrance niche apparently closed by an exterior slab.

[5] *Op. cit.*, p. 245 seqq.

[6] Bates, *op. cit.*, p. 246, Fig. 90.

separate 'chapel' of mud bricks. These comparisons extend West of the Sahara and the circles of the Senam of Msila in the Sud-Oranais, described by Randall-Maciver and Wilkin [1] with their flat upright 'ring stones' and the entrance reduced to a rudimentary niche, present essentially the same plan.

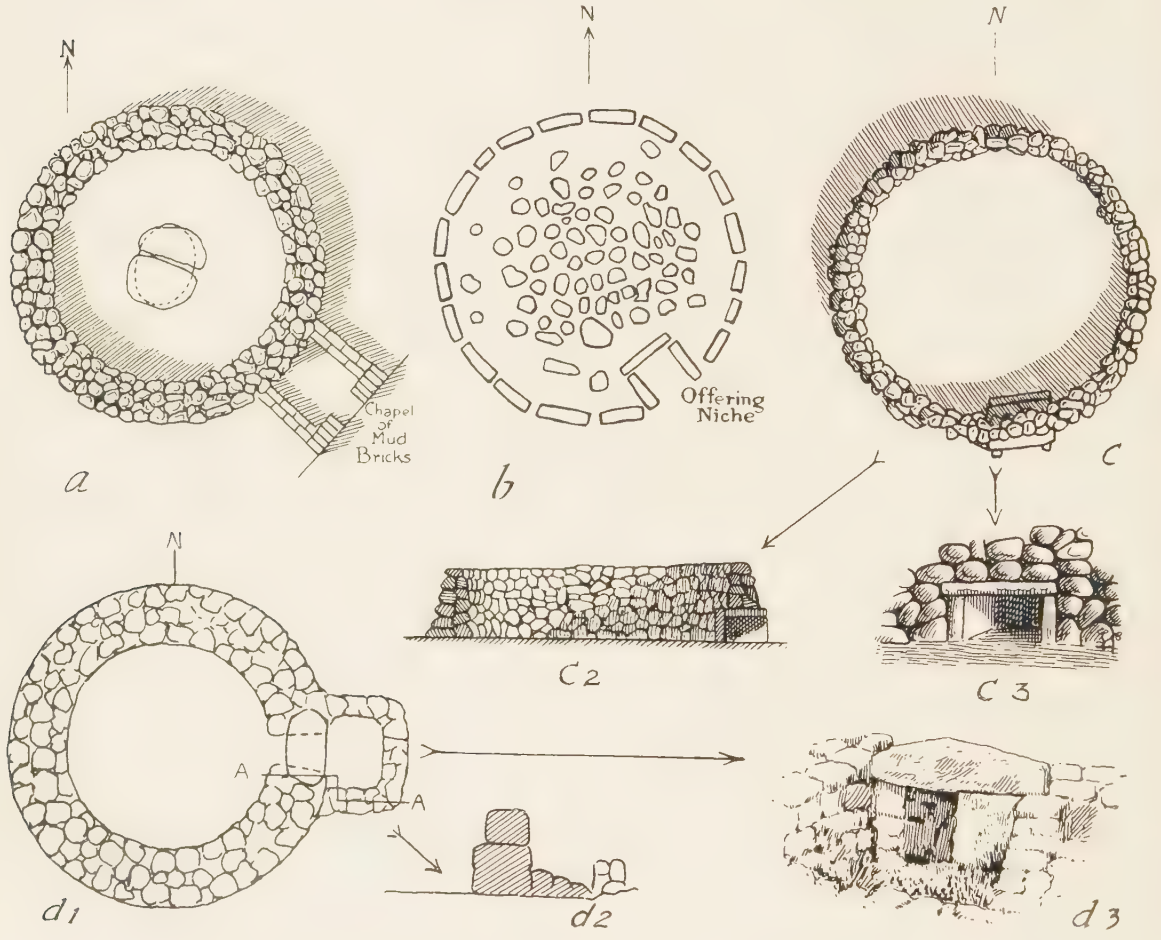


FIG. 17. PRIMITIVE BEEHIVE TOMBS: *a*, *b*, *c*, LIBYAN; *d* 1–3, KUMASA [2], CRETE.

Wide distribution in N. Africa.

The wide diffusion of this form of beehive tomb with an entrance 'chapel' from the Middle Nile to Southern Algeria involves the conclusion that it was the characteristic Libyan type of sepulchre. In the course of its later evolution, indeed, the *tholos* itself disappears and becomes a mere mound

[1] *Libyan Notes*, 1901, p. 78 seqq. and Pl. XV, Fig. 1. The authors remark (p. 81), 'The plan of a Mycenaean "beehive" grave will show a very suggestive resemblance. In short, we consider that these circles are derived from some such type as the "beehive" graves, the gallery leading into the latter being here replaced by a sort of false door above the ground.' Cf., too, Bates, *op. cit.*, p. 247.

[2] From plans and photograph, A. E., 1925.

within a stone circle, supplying the origin of such finished monuments as the circular tomb of Kubbah (Cyrenaica), of the Medrasen and the 'Tombeau de la Chrétienne',—mausolea which, while African in origin, are wholly classical in execution. But the prototype represents in fact the traditional form of the Libyan 'beehive' huts so well known to the Romans as the *mapalia*.[1] It is interesting to find St. Jerome referring to these African huts as resembling *furni* or 'ovens',[2] the name (φοῦρνες) by which the smaller 'beehive' tombs are still known to the Cretan peasants.

Derived from beehive huts: *mapalia*.

The primitive *tholos* ossuaries of Mesarà, of which Fig. 17, *d* 1–3, from Kumasa is a good example,[3] show idiosyncrasies of their own and the walled enclosure before the doorway presents a nearer approach to the pit entrance of half-sunken troglodytic dwellings in which we must seek the prototype of both series. There can be little doubt, however, of their affiliation to the much more widely distributed group on the farther shores of the Libyan Sea. In Crete we see them prevalent in a distinct geographical area[4] which, in historic times at least, lay in direct connexion with the ports that were the chief goals of maritime intercourse with Cyrene and Egypt. Gortyna, which lay within its limits, was indeed the seat of the Governors of the joint province of Crete and Cyrene, Matala near Cape Lithinos being its naval arsenal, while the health resort that clustered round the celebrated shrine of Asklepios at Lebena on the coast to the South-East of this was a colonial plantation of a Cyrenaic sanctuary[5] and a place of pilgrimage for Libyan visitors.

Mesarà group affiliated to Libyan.

When it is borne in mind that the beehive tombs of Mesarà must have presupposed some circular type of dwellings, such as the African *mapalia*, their exotic character on Cretan soil becomes the more apparent. Wigwam-like structures, indeed, with wooden posts seem to have existed in Minoan Crete in a religious connexion,[6] supplying a parallel to the 'House of Vesta'. It is also to be observed that the shepherds of Mt. Ida make for

Early Cretan house plan, square.

[1] See, especially E. Babelon, Art. 'Mapalia', in Daremberg et Saglio, *Dict. des Antiquités*.

[2] *In Prol. Amos*, 'Agrestes quidem casas et furnorum similes quas Afri appellant mapalia'.

[3] The site was visited by me in July, 1923, and the above plans and sections were made by Mr. Piet de Jong.

[4] See Diagrammatic Map, opp. p. 71; marked by red circles. I have since (1925) observed one at Krasi, near the North coast of Central Crete.

[5] Paus. ii. 26; Philostratus, *Vit. Apollonii*, ix, 11. The name of Balagrae (Βαλάγραι), the parent foundation in Cyrene, is connected by Bates, *op. cit.*, p. 185, with the Semitic Ba'al-keren recalling the Saturnus Balcarensis of Punic monuments. But the Ἰατρός of Leben suggests Eshmun.

[6] *P. of M.*, i, p. 674, Fig. 493. For a circular hut-urn containing a figure of the Goddess, see below, p. 129, Fig. 63.

themselves beehive shelters of rough blocks for their cheese-making and storage[1] which may be of ancient tradition. But the prevailing type of the Cretan house, as far back as Neolithic times, presented, as we now know, a rectangular plan.[2] Early Minoan tombs, such as those of Mochlos, themselves go back to 'but and ben' dwellings of that type.[3] The Early Cycladic evidence points to the same conclusion.[4] So far, moreover, as the central Aegean culture dominated that of the Peloponnese under its Early and Middle Helladic aspect the same is also true. When, then, from the Third Middle Minoan Period onwards we see at Mycenae, the Argive Heraeon, and elsewhere on various sites of the Peloponnese, in Attica and Boeotia widely disseminated groups of magnificently built beehive tombs the possibility of these having an origin not unconnected with the earlier and more primitive vaults of this Cretan region can hardly fail to suggest itself.

Were Mesarà *tholoi* related to Mycenaean?

It is clear, indeed, that there did exist North of the Gulf of Corinth a very early class of circular dwellings built of sun-dried bricks on a stone foundation,[5] and the complicated circular building presenting a similar structural combination brought to light in recent years beneath the Palace at Tiryns,[6] with its originally tiled roof, inner circles of walls, and tongue-shaped cells, may well be a glorified example of such. But the whole extent of the Middle Minoan and Middle Helladic Age intervenes between the destruction of this circular building and the first appearance of these beehive vaults, with which indeed, structurally, it had little in common. This interval, moreover, is largely occupied on the soil of the Peloponnese by an intrusive culture akin to the Minyan of the Northern shores of the Gulf and characterized by apsidal dwellings, which there superseded the round huts, and by more or less superficial cist graves with contracted burials. Nowhere in this intervening cultural phase has any type of building come to light that could supply the antecedent stage of the great *tholos*

Round huts N. of Gulf long superseded.

Round building at Tiryns also unconnected.

[1] Dr. Xanthudides has pointed out this parallel in *Vaulted Tombs of Mesarà*, Appendix, p. 136 (see Plate LX, *a*, *b*).

[2] The M. M. I oval house at Chamaezi, *P. of M.*, i, p. 147, Fig. 108, seems to be quite exceptional.

[3] *P. of M.*, i, p. 102, Fig. 73.

[4] The well-known Melian stone 'pyxis' with a raised rectangular enclosure presenting round turret chambers is an exceptional phenomenon (Tsuntas-Manatt, *Mycenaean Age*, p. 259, Fig. 133 (cf. Lubbock, *Prehistoric Times*, p. 57); Perrot et Chipiez, vi, p. 910, Fig. 461, &c.

[5] See H. Bulle, *Orchomenos*, i, p. 36 seqq., and Pl. IV. The apsidal dwellings and pits (*bothroi*) are in the stratum immediately superimposed on the round houses, and, again on that, the stratum equivalent to the Early Mycenaean.

[6] K. Müller, *Tiryns: Vorbericht über die Grabungen, 1905–1912* (*Ath. Mitth.*, xxxvii) (1913), p. 78 seqq. and p. 84, Fig. 2; G. Karo, *Führer durch die Ruinen von Tiryns* (Athens, 1915), p. 8 seqq. and Fig. 1.

tombs of Mycenae. These, too, make their appearance with architectonic details of a fully 'Minoized' type and associated with pottery and other relics of a purely Minoan character, including in the case of the 'Atreus' and 'Clytemnestra' tombs a series of stone vessels of typical M. M. III forms.[1] As compared with the Mesarà *tholoi*, the most recent of which were not in use later than the early part of M. M. II, this in itself represents a gap in time of over a century, and the architectural stage is naturally higher. A truly megalithic spirit breathes in these spacious vaults, which seem to have been reared by conquerors of royal stock who, like the Pharaohs, could command the labour of slave-gangs belonging to a subject race.[2] Monuments built under such conditions naturally contrast with the simply constructed burial chambers of rustic communities, though some of these, containing, as they often did, many hundreds of bodies, were almost as spacious.

Mycenaean *tholoi* first appear already Minoized.

A marked divergence is visible in the shape of a regular entrance passage or *dromos* in place of the pit-like quadrangular enclosure immediately in front of the doorway. There is, however, one hitherto unregarded structural feature common to both groups which may prove to have considerable significance. At Kumasa I noticed two lintel blocks, one in position[3] (see Figs. 18, 19, *b*, and 19, *c*), the other fallen from the doorway of another *tholos*, presenting a distinctly gabled upper outline. This raising of the centre was undoubtedly designed to enable the superincumbent blocks to exercise pressure sideways as well as downwards, and thus to relieve the weight on the middle section of the lintel—a purpose served later by the tympanum of the Mycenae monuments. We see here a natural step towards the evolution of the relieving triangle above. It is moreover of special interest to observe that in more than one case at Mycenae what may be called the 'humped lintel' survives in connexion with the triangular tympanum arrangement which really made it unnecessary. The massive conglomerate block that surmounts the doorway of the so-called 'Treasury of Atreus' shows, above its architectural mouldings, a raised ridge beneath the tympanum opening, against the side slopes of which the blocks forming the triangular arch rest.[4] The more or less con-

The 'humped lintel' at Kumasa and Mycenae.

[1] See my remarks *J. H. S.*, xlv (1925), p. 74 seqq.

[2] G. Glotz, *La Civilisation Égéenne*, p. 208. 'Nulle part les matériaux de construction n'y donnent par leur masse cette impression d'effarement qu'on ressent en Égypte devant les Pyramides ou devant les architraves de Karnak. C'est qu'aux Pharaons, maîtres absolus, la corvée fournissait des travailleurs à discrétion. Seuls les dynastes de Tirynthe et de Mycènes avaient peut-être à leur service des bandes, nullement comparables, mais très nombreuses encore, de sujets ou d'esclaves.'

[3] The view, Fig. 18, is from a photograph taken by me in July, 1923. The left extremity of 19, *b*, is completed.

[4] This is best shown in Fr. Thiersch's elevation (*Ath. Mitth.*, iv (1879), Pl. XIII.

temporary Lions' Gate exhibits in a still more primitive form the 'humped' lintel block beneath the slab presenting the well-known relief, the lower

FIG. 18. ENTRANCE TO SMALLER *THOLOS* A, KUMASA.

border of which has been cut out to receive it, somewhat at the expense of the artistic effect (Fig. 19, *a*). The lintel here is also cut into for the support of two side blocks, but otherwise, except for its much greater scale,[1]

So far as its architectural mouldings go the lintel block of the Atreus entrance presents a great analogy with that of the *tholos* tomb near the Argive Heraeon, the material in both cases being native conglomerate (see P. Stamatakis, *Ath. Mitth.*, iii, 1878, Pl. XI, 2, and cf. p. 275). The Heraeon Tomb contained remains of L. M. I *b* Vases (cf. Furtwängler, *Myk. Thongefässe*, Pl. XII) and of a purple gypsum lamp with foliate decoration of early L. M. I date, clearly a Knossian importation. Dr. Blegen has now found L. M. I *a* tombs near it.

[1] The length of the lintel block of the Lions' Gate is 4·60 m. (15 ft.), the width 2·50 m., and the thickness over a metre. The length of the two Kumasa lintels is 2·20 and 2·30 m.

it presents a distinct analogy to those from Kumasa, an outline of which is placed beside it in Fig. 19, *b*, *c*, for comparison. In the *tholos* of Christos the inner lintel block of the doorway, which has exceptionally massive proportions, displays the same protuberance above. It is here 90 cm. thick. (See below, p. 82, Fig. 38.) A remarkable survival of the same architectural expedient occurs in the massive lintel of the doorway of a circular grave[1] enclosure near Myndos in Caria of a class containing 'Sub-Minoan' pottery.

The discrepancy in date and cultural stage between the two groups of monuments leaves a void in our knowledge which can only be filled up by

FIG. 19. *a*, LINTEL OF LIONS' GATE, MYCENAE. *b*, *c*, LINTELS OF *THOLOS* A AND E, KUMASA.

fresh discoveries. The range of distribution of the 'Mycenaean' beehive tombs is certainly quite compatible with a Cretan source. This is especially the case when we regard the notable examples on the Western Coast of the Morea at the Messenian Pylos,[2] overlooking the famous harbour of Navarino, and, farther North, at Kakovatos,[3] identified by Dörpfeld with the Homeric Pylos.[4] Not only are the original contents of these tombs, moreover, purely Minoan, but the decorative sculptures, such as we see them in the façade of the 'Atreus' tomb, answer, as we shall see, to those of the Palace at Knossos as restored at the close of M. M. II after the great catastrophe. It is true that, notwithstanding these unquestionable affinities, no such contemporary vaults of a sepulchral kind have as yet been discovered on Cretan soil. The Royal Tomb of Isopata[5] is itself of rectangular

Minoan associations of 'Mycenaean' *tholoi*.

[1] Figured by Fr. Winter, *Ath. Mitth.*, xii (1887), p. 225, Fig. 2. For the pottery of this group see W. R. Paton, *J. H. S.*, viii (1887), p. 69 seqq.

[2] K. Kuruniotis, 'Αρχ. 'Εφ., 1914, p. 99 seqq. This tomb, the original contents of which belong to L. M. I *b*, was reoccupied at the very end of the Mycenaean Age. So, too, the Aigisthos Tomb at Mycenae.

[3] Kurt Müller, *Ath. Mitth.*, xxxiv, 1909, p. 269 seqq. The early elements belong to L. M. I *a* (e. g. the amphora, p. 316, Fig. 16), but the great bulk of the vases are L. M. I *b*.

[4] *Ath. Mitth.*, xxxviii (1913), p. 97 seqq. *Die Lage der homerischen Burg Pylos.*

[5] *Preh. Tombs of Knossos*, p. 136 seqq. (*Archaeologia*, lix).

construction, with a keeled vaulting, and the influence of this type on smaller tombs extends as far West as the neighbourhood of Canea. A remarkable structure to be described below bids us pause, however, before we regard the non-discovery in Crete up to the present date of beehive tombs contemporary with those of Mycenae as definitely excluding the survival in the Island of the tradition of the primitive vaults.

At Arkhanes, the nearest important Minoan centre inland of Knossos, the lower part of a circular Well-House has in fact come to light[1] built, on a smaller scale, apparently after the same beehive fashion as the Mycenae tombs and dating from the beginning of the First Late Minoan Period.

The affiliation in their turn of the *tholos* ossuaries of Mesarà to similar sepulchral structures distributed over a wide Libyan area, for which there is such good evidence, is only one aspect of the very ancient relationship between prehistoric Crete and the opposite African coastlands, which in its earliest phase seems to have centred on the Delta. A fuller knowledge indeed of the contents of the Mesarà vaults themselves enables us to supplement the evidence already supplied by the stone figurines.

Stone palettes and vessels of Nilotic types from Mesarà *tholoi*.

Two classes of objects well represented in these ossuaries may be here mentioned as specially significant. The rectangular stone palettes of the late pre-dynastic age, used, like the earlier forms of more varied outline, for malachite and antimony to adorn the person, are of frequent occurrence in these interments, doubtless for similar toilet use[2] (Fig. 20, *a*, *d*). Among the prehistoric vessels from Hierakonpolis are types consisting of a stone block with cups cylindrically bored and diagonal perforations on the upper edge, as if for suspension or the attachment of a cover.[3] This heavy form of vessel (Fig. 20, *b*, *c*), possibly of ritual usage, is the progenitor of a whole series of later and somewhat more decorative forms with similar diagonal perforations that characterize these Cretan *tholoi* (see Fig. 20, *e*, *f*). Survivals of these types are also found in Late Minoan deposits.[4]

Was there a Libyan element in Crete?

In face of these remarkable parallels, not only in the structure of the sepulchral vaults but in their most typical contents, it may well be asked

[1] See p. 64, Fig. 29.

[2] The Nilotic class are of slate, those of the Mesarà ossuaries are of limestone. Fig. 20, *d*, is given by Xanthudides, *op. cit.*, Pl. XXI. The use of these stone palettes also spread to the Cyclades, and recur at Sesklo in Thessaly (Tsountas). On marble examples from Paros and other Cycladic sites are traces of a red material (probably peroxide of iron) used no doubt for toilette purposes. For the traces of tattooing on early Cycladic marble images see especially Chr. Blinkenberg, *Præmykeniske Oldsager* (*Aarbøger f. N. Oldk., &c.*, 1896), p. 40 seqq.

[3] Quibell, *Hierakonpolis*, i, Pl. XXXI, 3, 4.

[4] S. House, Knossos, L.M. I*a*; *Palaikastro*, p. 135; L. M. III. Also at Mycenae.

whether many of the contracted bodies of the dead that lie within may not themselves be of Libyan extraction. Their long skulls, at times somewhat domed in the posterior region,[1] may not be conclusive on this point, since dolichocephaly was early established in the Island, but it would at least be in keeping with such a conclusion. The comparison suggested by the contracted skeletons with the well-known Libyan practice of 'trussing' the dead is also of a general nature. A specific resemblance is to be found, however, in the perforated foot-shaped amulets of stone found in some of the *tholoi* which fit in with the indigenous Nilotic practice of attaching such to

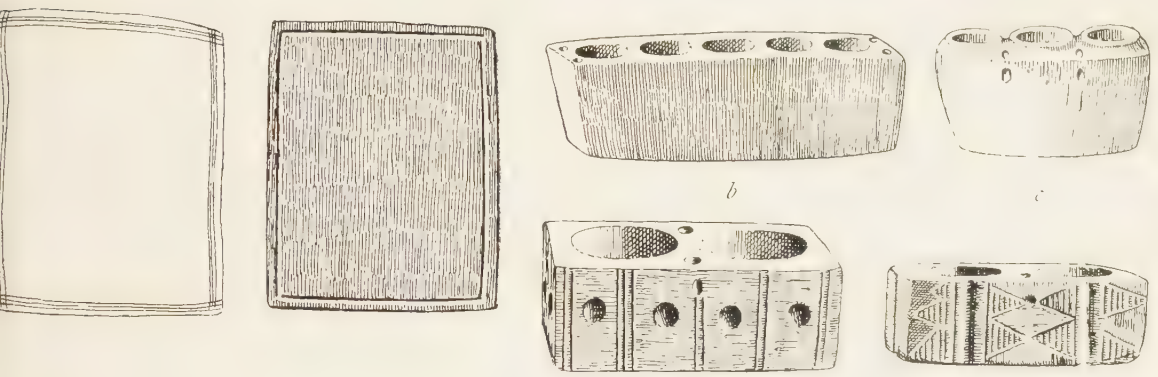


FIG. 20. COMPARATIVE SERIES OF STONE PALETTES AND VASES: *a–c*, PRE-DYNASTIC EGYPT; *d–f*, CRETAN *THOLOS* OSSUARIES, MESARÀ.

the ankles.[2] It is clear that these burials extend over a considerable interval of time, from the First Early Minoan Period to at least the beginning of the Middle Minoan Age, and we should reasonably expect that any immigrant element would in process of time have blended with the native Cretan.

The evidence as a whole seems to be best explained by the suggestion already made that some settlement in the Island of the earlier Delta people had actually taken place, perhaps as a result of Mena's Conquest. It may have been reinforced from time to time by later immigration.

Shell inlay of Negroized type.

The question even arises whether some of the other, in this case partly negroized elements, with whom the 'proto-Libyan' race stood in close relations in the Nile Valley, may not also have found their way to this Cretan district in their wake. In this connexion, indeed, it seems worth while calling attention to a hitherto unpublished relic, obtained by me in 1894 from

[1] Cf. Xanthudides, *op. cit.*, Pl. LIX, pp. 126, 127.

[2] See *P. of M.*, i, p. 125; also *Cemeteries of Abydos*, Pt. I, Pl. VII; Garstang, *Mahâsna and Bèt Khalàf*, p. 300, and Pl. XXXIX. These burials belong to the VIth Dynasty and immediately succeeding period. Many of the typical 'button-seals' are allied to the Cretan. Some of the skeletons were contracted.

Shell Inlay from Mesarà.

near Phaestos, together with a pot of variegated limestone, in all probability derived from the Hagios Onuphrios deposit, where another stone vessel, similar in form and material, was found.[1] The object is an inlay of shell, apparently of the *Tridacna*, the nearest habitat of which is the Red Sea, but which was in use in Crete for small carved works from the beginning of the Early Minoan Age, as is evidenced by an 'idol' of this material from Central Crete[2] showing a distinct Neolithic tradition. We see here a bearded face of repugnant aspect and disproportionately large eyes—both the pupil of which and a circle surrounding the iris had been originally inlaid (Fig. 21, *a*, *b*).

a *b* *c*

FIG. 21. *a*, *b*, MESARÀ, CRETE: *c*, NEGROIZED LIBYAN (PRE-DYNASTIC PALETTE).

These features, coupled with the snub nose, and thick lips,[3] recall the head, given here for comparison (Fig. 21, *c*), of one of the men belonging to a conquered tribe, the exposure of whom to wild bulls is recorded on a pre-dynastic slate palette.[4] The captives were apparently negroized Libyans.[5]

[1] See my *Sepulchral Deposit of Hagios Onuphrios near Phaestos* (Supplement to *Cretan Pictographs*, &c.; Quaritch, 1895, p. 116, Fig. 109, and p. 117, Fig. 110). The two vases are of the same general type as Seager, *Mochlos*, xix, 3 (Fig. 4) dated to E. M. II.

[2] *P. of M.*, i, p. 48, Fig. 13, 20. It is there wrongly described as 'alabaster'.

[3] I had hesitated for long to place this object in its proper relation owing to the impression that the head might be archaic Greek. It does in fact present a certain analogy with such rude archaic profiles as that of a bearded warrior on a stater of Kalymna (B. M. Coin Cat., *Caria*, &c., Pl. XXIX. 8). But the material and the inlay technique weigh decisively in the Early Minoan scale.

[4] Heuzey, *Bull. de Corr. Hellénique*, xvi, Pl. I and p. 307 seqq. (cf. de Morgan, *Recherches sur les origines de l'Égypte*, 1897, Pl. II). The point of the beard is here restored from a similar head. The fragment of the palette on which this head occurs is in the Louvre.

[5] It is to be observed that they wear the 'Libyan sheath' with the characteristic indication of the *scrotum*. Heuzey (writing in 1892) suggested that the figures might belong to a half-Semitized African race; he also remarks (*op. cit.*, p. 309), 'Le sourcil épais se prolonge jusque sur le nez, comme dans les têtes chaldéo-assyriennes.' But the Libyan sexual arrangement is unmistakable.

Among the evidences of intimate contact with the inhabitants of the Nile Valley at a very early date which may well be explained by an actual racial infusion is the appearance already in Early Minoan times of a kind of draught-board, known to pre-dynastic Egypt.[1] A representation of this, with its pieces above, on an Early Minoan seal[2] substantially reproduces the *men* sign that supplied the principal hieroglyphic element in the name of the first historic Egyptian king. Another contemporary seal-stone depicts a native Cretan placing a piece on a board, and the associations

Pre-dynastic Draught-boards.

a *b*

FIG. 22. *a*, *b*, SISTRUM PLAYER AND HARVESTERS' DANCE, HAGIA TRIADA 'RHYTON'.

of the magnificent examples of later date show that they were not only, as in prehistoric Egypt, buried with the departed, but were at the same time sacred to the great Minoan Goddess.[3]

How early, too, may not the Nilotic influence go back, which is so visible in the harvesters' dance on the steatite cup from the site of Hagia Triada (Fig. 22)—itself commanding one of the main lines of access from the Libyan Sea to the Mesarà Plain? A priest with a thick waist, unusual, though not unparalleled, among Minoan men,[4] who leads one division of the reapers' rout, and is immediately followed by three girl choristers, intones

Early sistrum type of harvesters' rout.

[1] A clay example was found in a pre-dynastic grave (E. B. Ayrton and W. L. S. Loat, *Predynastic Cemetery of El Mahâsna*, Pl. XVII and p. 30: cf. *P. of M.*, i, p. 478 and n. 1).

[2] *P. of M.*, i, pp. 124, 125 and Figs. 93 A, *a*, 2 and 93 C.

[3] A 'Sacral Knot' was associated with the faïence draught-board from the Fourth Shaft Grave at Mycenae (see *P. of M.*, i, pp. 483, 484).

[4] The heavily built bronze figure from Tylissos shows indeed that such abdominal development was not unknown in Minoan Crete. It is possible, too, that the upper margin of the loin clothing that appears below is port of a broad belt such as the Tylissos

his chant to this jingling music (Fig. 22). The sistrum here is of primitive form with a single bar in contrast to the dynastic Egyptian examples with three or four.[1] The later form occurs as a sign, possibly ideographic, on tablets of Class A.

Cult parallels.

The stone libation table, forming part of the baetylic altar, from the Psychro Cave, the traditional refuge of the Cretan Rhea and the birthplace of the native Zeus, finds a remarkable parallel, of a later date it is true, from Cyrenaica.[1] Here too we see a central pillar, somewhat conical, upon which, further supported by legs at its corners, rests an offering slab with a recipient above. The cult of the Minoan Goddess, with which at any rate the Psychro Libation Table and other kindred objects must be connected, finds its most

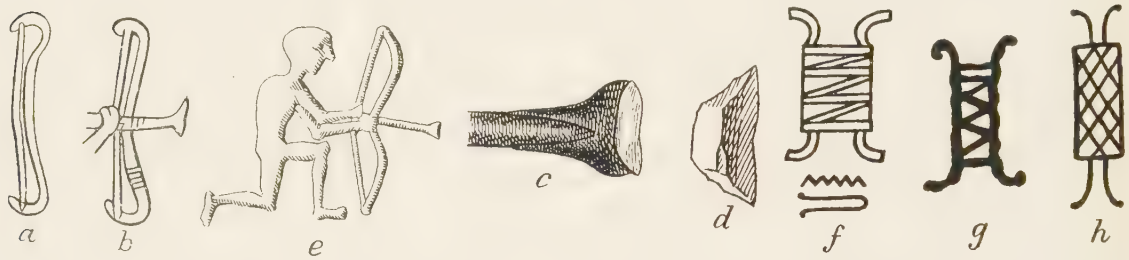


FIG. 23. CRETAN, PROTO-NILOTIC, AND LIBYAN BOWS AND ARROWS. *a*, *b*, PRE-DYNASTIC EGYPTIAN; *c*, CHISEL-EDGED EGYPTIAN ARROW-HEAD, SECURED BY BITUMEN; *d*, FLINT ARROW-HEAD, SAHARA; *e*, CRETAN ARCHER (M.M. I *a*); *f*, NEITH SYMBOL: BOWS IN SHEATH; *g*, *h*, THE SAME SYMBOL AS LIBYAN TATTOO-MARK.

natural associations, as has been already shown, in the Anatolian worship of a similar Virgin Mother. Yet on the Libyan side, again, there

Neith and Diktynna, &c.

may be recognized in the cult of the national Goddess Neith not only general community of divine nature but actual identity as regards some important attributes. She was not only a Virgin-Mother, Goddess of Vegetation, but the armed Maiden, whose special symbols, the bow and arrows and their case, recall a prominent form of the Minoan Goddess, perpetuated in the Diktynna and Britomartis of later days. The chief priest of Sais, 'the Dwelling of Neith', was the 'Great One of the Bow'. So we see the Minoan Goddess depicted as the huntress and find votive arrow plumes in

Early Nilotic bow.

the Central Shrine of the Knossian Palace.[3] The bow of Neith, as may be gathered from her symbol (Fig. 23, *f*), which represents two bows in

figure wears. L. Savignoni (*Il Vaso di Hagia Triada: Mon. Ant.*, xiii (1903), pp. 124, 125) regards both 'priest' and singing women as Libyan.

[1] See Wilkinson, *Ancient Egyptians* (1878 ed.). vol. i, p. 497 seqq.

[2] See my *Myc. Tree and Pillar Cult*, pp. 17, 18, and *J. H. S.*, xxi (1901), pp. 115, 116, and Fig. 9.

[3] *P. of M.*, i, pp. 548, 549 and Fig. 399, *a*.

a sheath,[1] is identical with that shown in pre-dynastic reliefs[2] (Fig. 24, *a*) which in fact supplies the prototype of the earlier Egyptian hieroglyph for bow, (𓌀 *pit* or *peti*).[3] It does not appear to have been a 'composite' bow of the Asiatic class, but rather a specialized variety of the 'plain' bow of a type that still survives in Somaliland.[4] The bow itself was regarded as a specially Libyan weapon, and the Libyan tribes are referred to collectively as the 'Nine Bows'. The arrows of Neith (Fig. 24, *a*, *b*) show the same connexions. They are of the same chisel-edged type that is seen in the hands of the huntsmen on a pre-dynastic palette of the class referred to, one of whom holds a batch of three such arrows (Fig. 24, *a*). The bowmen here wear plumes, and it is noteworthy that arrows of this type, similarly bunched together, are held by what appear to be negroized Libyans, who also wear the national ostrich plumes, in a wall-painting at Beni-Hassan (Fig. 24, *b*).[5] Flint-tipped arrows of this broad-edged type occur in Egyptian tombs[6] (Fig. 23, *c*), and are abundant in the Neolithic settlements of the Saharan region[7] (Fig. 23, *d*). It is interesting to observe that this chisel-edged type is seen in the hands of the huntsman shooting a wild goat (Fig. 23, *e*) on the ivory half-cylinder of M. M. I *a* date, from Knossos, illustrated in Vol. i

Chisel-edged arrows: also Cretan.

[1] The so-called 'shuttle' of Neith was thus convincingly explained by Miss M. A. Murray, *Ancient Egypt*, 1921, Pt. II, pp. 35–7.

[2] E. g. on limestone vase, *Hierakonpolis*, Pl. XIX. 1, and on slate palette in the Louvre, Heuzey, *Rev. Archéologique*, 1890, Pl. IV–V, and p. 145 seqq. De Morgan, *Recherches sur les origines de l'Égypte*, 1897, pp. 264, 265, and Fig. 864.

[3] See Lepsius, *Der Bogen in der Hieroglyphik* (*Z. f. äg. Sprache*, 1872, pp. 79–88).

[4] This is the opinion of Mr. Henry Balfour, the first authority on the evolution of the bow. *The Structure and Affinities of the Composite Bow* were already discussed by him in the *R. Anthr. Inst. Journ.* for 1900 (vol. xix, p. 220 seqq.). The great rarity of the composite type in Egypt is shown by Dr. Felix von Luschan (*Ueber den antiken Bogen*, p. 193), who, out of some eighty Egyptian bows examined by him, found only a single composite specimen, now in the Berlin Museum. It is of Rameses I's time and apparently of Hittite origin (see, too, C. J. Longman, *The Bows of the Ancient Assyrians and Egyptians* (*R. Anthr. Inst. Journ.*, xxiv, 1895, p. 51) and H. Balfour, *On a remarkable ancient Bow* (*ib.*, vol. xxvi, 1897, p. 210 seqq.).

[5] Cf. Heuzey, *loc. cit.*, p. 149 D, E. One warrior holds a bunch of three arrows, just like a figure on the pre-dynastic tablet.

[6] See Chabas, *Antiquité historique*, p. 380 seqq, and J. Evans, *The Ancient Stone Implements of Great Britain*, p. 329, Fig. 272. The flint was secured to the shaft by bitumen. Cf. types from the shell-mounds of Mugem, Portugal (H. Obermaier, *Fossil Man in Spain*, p. 324, Fig. 135, and p. 325, Fig. 136 *a*).

Two specimens, however, are recorded as having been found as far afield as Denmark (Madsen, *Afbildninger af Danske Oldsager: Steenalderen*, Pl. XXII, 18, 19: cf. Chabas, *op. cit.*, p. 382, and J. Evans, *op. cit.*, p. 365).

[7] The resemblance they present to trapezoid flints of a Late Capsian class ranging from Syria to Portugal may even suggest an 'epi-palaeolithic' origin.

of this work, and an indigenous bow with an arrow of this kind appears as a Minoan hieroglyph on a contemporary bead-seal from Mallia[1] (Fig. 23 *bis*). For the chase these broad-edged arrows were specially efficacious, since, though they did not penetrate so well as the pointed type, they were better adapted for cutting arteries and tendons and thus crippling the quarry.

The bow of this sign and that held by the Knossian archer, though of somewhat abnormal shape, was yet of the 'plain' kind, and, like that of Somaliland at the present day, may best be regarded as a descendant of the early Nilotic type. It is not till Late Minoan times, indeed, that we have clear evidence of the use of the Asiatic composite bow in the Island,[2] though, as might be expected, that type is already seen on the Phaestos Disk.

a

b

FIG. 23 *bis*. TRIANGULAR BEAD-SEAL OF BROWN STEATITE FROM MALLIA.[1] ON THIRD SIDE REVERSED SCROLL.

Shield of Neith.

The oval shield with incurved sides with which the crossed arrows of the chisel-edged kind are coupled in the earlier dynastic representations of the Neith symbol (Fig. 24, *c*, *d*)[3] has still more definite relationships with Cretan forms. As Professor Newberry has pointed out,[4] it is essentially the same as the Minoan 8-shaped body-shield. In the case of the large signet-ring from the Mycenae Shaft Grave (Fig. 25, *c*) and of the painted slab from the same site depicting a scene of worship, we see figures of a Minoan divinity, in the latter case white-limbed and therefore certainly female,[5] bearing shields of this type. These Minoan versions have been regarded as an anticipation of the later *Palladium*,[6] and it may further be recalled that the local cult of the Minoan Goddess, both at Mycenae and on the Acropolis of Athens, was perpetuated in later days by a temple of

Also Minoan.

Neith and Athena.

[1] Found in a private house by the French excavators in 1924 with M. M. I *a* pottery and reproduced by their kind permission.

[2] The Asiatic type—'Cupid's bow'—already appears in the hands of the hunting Goddess on gold-signet rings of the Late Minoan Age (e.g. hunting Goddess and warriors, Thisbê Treasure). The horns of the wild goat seen on a series of inscribed tablets from the 'Magazine of the Arsenal' at Knossos (*Knossos, Report*, 1904, pp. 58, 59) were doubtless used in the manufacture of 'composite' bows.

[3] Fig. 24 *c*, from stela of King Mer-Neith (Petrie, *R. Tombs of First Dynasty*, vol. i, frontispiece). *d*. the shrine of Neith from Tablet of Aha (*op. cit.*, ii, Pl. X. 2). On later monuments the shield of Neith takes the ordinary Egyptian shape.

[4] *Proceedings of the Soc. of Bibl. Arch.*, 1906, pp. 72, 73.

[5] An improved copy of this design is given by Rodenwaldt, *Votivpinax, &c.*, *Mitth. d. Arch. Inst.*, xxxvii, 1912, Pl. 8.

[6] See E. Gardner, *Palladia from Mycenae* (*J. H. S.*, xiii, 1893, p. 21 seqq.).

Athena, just as Rhea succeeded her at Knossos. In this connexion a great interest attaches to the persistent Greek tradition which regarded Pallas Athene as herself of Libyan origin.[1] It can hardly be doubted that Neith was the same as the Goddess of the Ausean[2] Libyans, dwelling about Lake Tritonis, who is identified with Athena in a special way by Herodotus;[3] indeed the widespread cult of Neith among the Libyan tribes is

a *b* *c* *d* *e*

FIG. 24. *a*, ON PRE-DYNASTIC SLATE PALETTE; *b*, WALL-PAINTING, BENI-HASSAN; *c*, STELA OF MER-NEITH; *d*, ON TABLET OF AHA; *e*, LIBYAN ROCK-CARVING.

attested by the recurrence of her symbol as a native tattoo-mark (Fig. 23, *g*, *h*).[4] As a Sky Goddess, Mother of the Sun, who took the lead in his passage through the Under-World and stood, generally, in a close relation to the cult of the dead, Neith, who also assumed the form of a cow, was closely assimilated to Hathor and the Delta Goddess Wazet, whose cult, as we have seen, is partly reflected by that of the Goddess who occupied the Central Shrine at Knossos.[5] May not the votive arrows there found point to a fusion with this sister divinity?

Arrows of Central Shrine at Knossos.

A Libyan rock-carving (Fig. 24, *e*) from the Atlas region[6] shows that

[1] Herodotus, ii. 28, 59, 83, 169, 170, 175; cf. Diod., i. 28, &c.; Plato, *Timaeus*, ed. Franc. 1043; Hesychius, *s. v.* Νηίθ; cf. D. Mallet, *Le Culte de Neit à Sais* (Paris, 1888, &c.) and W. Drexler in *Roscher's Lexikon* (Nit).

[2] The parallelism between Neith and the Ausean Goddess is worked out in the most elaborate and conclusive way by Oric Bates (*Eastern Libyans*, p. 203 seqq.)

[3] iv. 180.

[4] H. Brugsch, *Religion und Mythologie der alten Aegypter*, p. 340 seqq.; O. Bates, *op. cit.*, p. 139, and cf. p. 206.

[5] *P. of M.*, i, p. 509 seqq.

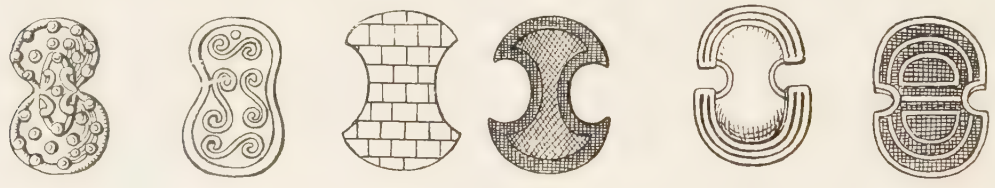
[6] G.-B.-M. Flamand, *Inscriptions de la Gara des Chorfa*, p. 11, Fig. 7; O. Bates, *Eastern Libyans*, p. 148, Fig. 60.

a form of shield with incurved sides which, though of broader proportions, is closely related to the Saite type (Fig. 24, *c*, *d*) had a wide Western diffusion. The Minoan shield is itself a body-shield. Perhaps it was owing to the peaceful character of the subjects chosen by the primitive Cretan artists that few representations of such shields can be found earlier than the closing phase of the Middle Minoan Age. A figure-of-eight shield of the simpler type occurs, however, on a three-sided bead-seal of steatite (Fig. 25, *a*) probably

Minoan shields.

a *b* 1, 2 *c* *d* *e* *f*

a–f, MINOAN 8-SHAPED SHIELDS. *a*, ON STEATITE BEAD-SEAL (E.M. III); *b*, BLUE-STONE BEAD, MESARÀ, *THOLOS*; *c*, SIGNET-RING, MYCENAE; *d*, FRESCO, KNOSSOS, L.M. I; *e*, MYCENAE DAGGER; *f*, L.M. I SEALING, KNOSSOS.



g *h* *i* *j* *k* *l*

g, *h*, ROMAN *ANCILIA*; *i*, HITTITE; *j*, 'DIPYLON'; *k*, BOEOTIAN; *l*, AEGINA TREASURE.

FIG. 25. COMPARISONS WITH MINOAN SHIELDS.

of early E.M. III date,[1] and a blue-stone bead found by Dr. Xanthudides in a primitive *tholos* of Mesarà (Fig. 25, *b* 1, 2), shows a well-executed relief of another example. The later types are generally distinguished by an elongated boss which, as in other parallel cases, may be thought to have originated in a combination with a parrying stick.[2] It is this composite form that clearly supplies the source—whatever was the channel through which it passed—of the *Ancilia* of the Roman Salii (Fig. 25, *g*, *h*).[3] It is also seen in the hand of Juno Sospita of Lanuvium, who with her brandished spear, goat-skin, and attendant serpent betrays affinities with Athena.

Ancilia.

[1] From Central Crete: in my Collection.

[2] Among the Kaffirs the parrying stick is preserved on the back of an elliptical body-shield. In Sumatra we see it as a raised keel in front of an oar-like shield. The practice seems to have been widespread. (See my remarks *J. H. S.*, xiii (1892), p. 215, n. 44.)

[3] From a denarius of P. Licinius Stolo. See Babelon, *Monnaies de la République Romaine*, ii, p. 139, No. 29; H. A. Grueber, *Coins of the Roman Republic in B. M.*, ii, p. 81 (Pl. LXVIII, 9). A decorative derivation of this type with the inscription ANCILIA occurs on bronze coins of Antoninus Pius (Cohen, *Médailles impériales* (1882), ii, p. 273, No. 30).

There are, moreover, indications among the religious scenes on Minoan signet-rings that, like the sky-fallen *Ancile* of Rome, the shield was itself a material impersonation of the divinity and possessed of baetylic powers.[1]

The Minoan figure-of-eight shield retains the tradition of its origin from a spotted oxhide disk with the middle of its circumference pulled in on either side, and the spots even survive on the curved bosses of the *Ancilia* seen in Fig. 25, *g*. The typical Hittite 'targe' as used in the Battle of Kadesh (*c.* 1350 B.C.), with curves cut sharply out of its circle, has at most only a secondary connexion with the hide type, and specimens such as Fig. 25, *i*, point rather to a wooden frame with a facing of plait-work. It was this form that was taken over by the Greeks of the 'Geometrical' Period and, as the 'Dipylon' type[2] (Fig. 25, *j*), and Boeotian shield (Fig. 25, *k*), survived into Classical times. The ring-besil from the Aegina Treasure (*l*) shows a variant of this. Yet the existence on the Sendjirli sculptures[3] of a late Hittite shield of the true figure-of-eight shape, if it be not due to Mycenaean influence, may still point to some prototype on the Anatolian side allied to the Cretan and primitive Nilotic. In that case we should have an East Mediterranean grouping parallel to that illustrated above by the occurrence of the double axe symbol in pre-dynastic and proto-dynastic Egypt.

Hittite targe: allied to Dipylon, &c.

Regarding the material indebtedness of Cretan arts and crafts to the primitive civilization of the Nile Valley it is often difficult to say how far it was directly due to the old Delta people, or at second hand to the Egyptians of the early dynasties. If in the *tholos*-builders of Mesarà we may trace the actual settlement of a fragment of the original Nilotic population in that region, we are entitled to conclude that their Cretan neighbours learned from them certain secrets of their crafts. Was it possible, indeed, for Cretan workmen to have copied the imported Nilotic vases and evolved such skilful lapidary types of their own from native rocks without some such apprenticeship? We have seen that the Tehenu of the Western Delta and its borders have an

Direct apprenticeship of Minoan craftsmen.

[1] See *Mycenaean Tree and Pillar Cult*, p. 82 (*J. H. S.*, xxi, p. 180), and cf. p. 78 (176), Fig. 52 (177), Fig. 53.

[2] The Anatolian origin of this was pointed out by me in *J. H. S.*, xiii (1892), p. 216. In discussing the ring with shield-shaped besil from the Aegina Treasure (Fig. 25, *l*) there described, I wrongly (as I now recognize) dissociated it, as well as the closely related shield of Ajax seen on the coins of Salamis, and the allied Boeotian class, from the 'Dipylon' type and brought them into a Mycenaean (or Minoan) connexion. It seems more probable that these latter are off-shoots of the 'Geometrical' Greek form, which itself must be recognized to be of Anatolian origin.

[3] On the orthostats of the Citadel Gate. F. von Luschan in *Ausgrabungen von Sendschirli*, iii (1902), p. 213, Fig 103, and Pl. XL; p. 222, Fig. 122, p. 229, Fig. 135. These sculptures do not seem to be earlier than 700 B.C.

Glaze-ware faïence metal-work.

undisputed claim to the invention of the glass and glazed wares to which their name was applied by the Egyptians, a fact explained by the inexhaustible stores of *natron* in the Libyan oases. In all faïence fabrics the indebtedness of Crete to dynastic Egypt was great and begins early,[1] but the first knowledge there of this art may mount back to its original source. The art of inlaying which took such an early root in the Island also goes back beyond the dynasties. Metal working was also, doubtless, largely influenced and the more elongated form of copper dagger, with its incipient tang—the prototype of Minoan swords—stands in close relation to a still simpler early Nilotic class.

Agricultural indebtedness.

Cretan agriculture may also have owed much to the same Nilotic source. The beans found in the store-rooms at Knossos were at once recognized by our workmen as identical with those at present imported into the Island from Egypt.[2] That the Tehenu of the Western Delta signifies 'Olive-land'[3] may well explain, moreover, the introduction of olive culture into Crete in Early Minoan times.[4] The Delta plantations themselves would probably have been introduced from Palestine, but there is no evidence of direct relations between the Syrian coastlands and Crete during this early period. So, too, of great interest in relation to the early intercourse with the opposite Libyan Coast and the region that was afterwards Cyrene is the appearance among the Minoan pictographic signs of two that seem to represent the Silphium plant and its seed capsules.[5] May not this mysterious vegetable have been cultivated in Crete itself?

Varied indebtedness to Early Egypt.

The influence of the early Egyptian cylinders has already been noted. Not only were exotic animal types, lions, crocodiles, cynocephali and other apes, and perhaps ostriches, taken over from this source on to the Cretan seals, but we find in their company compound monsters, pointing, as has been already observed, to the influence on Egypt itself of a cylinder style born still farther East. Among these is a foreshadowing of the Minotaur himself, while the meanders of another class of Egyptian seals supply the Labyrinth. The Hippopotamus Goddess Taurt, the forerunner of the Minoan Genii, is already seen on a Twelfth Dynasty Egyptian scarab found in Crete.[6] The hiero-

[1] *P. of M.*, i, p. 85 and Fig. 53.

[2] They called them κουκιὰ Μισιριωτικά: 'Egyptian beans'.

[3] See above, p. 23 and Newberry, *Anc. Egypt*, 1915, p. 97 seqq.

[4] A great pithos, probably an oil-jar, is seen on the E. M. III seal-stone, *P. of M.*, i, p. 124. In 1923 remains of two large pithoi came to light on the Southern slope at Knossos with horizontally perforated ledge handles and belonging to a somewhat later type than that on the seal-stone.

[5] *P. of M.*, i, pp. 284, 285, Figs. 216–19, and cf. *Scripta Minoa*, i. Bates, in his *Eastern Libyans* (p. 101), inclines favourably to these identifications.

[6] In *P. of M.*, i, p. 200 (see Fig. 148) this is spoken of as a 'Minoan imitation'. Dr. H. R.

glyphic writing stimulated the growth of an independent Minoan system which, indeed, included a certain number of borrowed signs such as the *ankh* or life symbol, the libation vase (*qebeh*), the bee (*byty*) of the royal title, and the Palace sign itself. The long-spouted teapot-like crocks of the Early Minoan household seem to have been influenced by the copper ewers of contemporary Egyptian usage. Even the humble Cretan used ointment pots of Egyptian shape, and to complete his toilette had the choice of two varieties

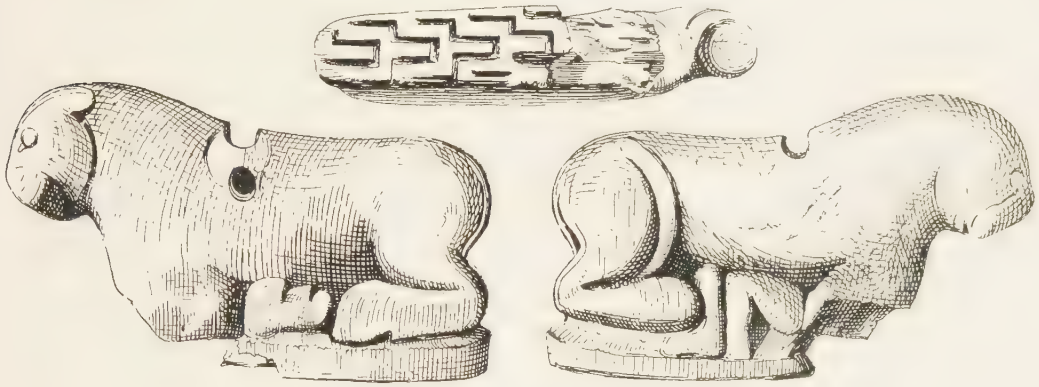


FIG. 26. EARLY MINOAN IVORY SEAL FROM PRIMITIVE *THOLOS* OF KALATHIANÀ. ($\frac{5}{3}$.)

of depilatory tweezers in vogue under the Old Kingdom. Beneath the ilex shade he played his favourite 'backgammon', such as had been popular at a much earlier date on the banks of the Nile, and he went to bed with the aid of a candlestick of proto-dynastic shape.[2]

Amongst the ivory seals the lion type so frequent under the early Egyptian dynasties (often used for gaming pieces[3]) is specially significant. An Early Minoan ivory seal from the Kalathianà *tholos*[4] shows the king of beasts not as a devourer but serenely guarding the body of a man seen in the contracted attitude in which the dead were laid within these primitive vaults. In this lion guardianship of the departed we recognize an idea, here already implanted from a Nilotic source, that was to be handed on not only to the Late Minoan Age but to the sepulchral art of Classical and all later times. The clear-cut profile, aquiline nose, and high head of the man, though summarily executed, afford at the same time a valuable ethnic indication. We have here a type recalling that of the proto-Libyans of Fig. 9.

Hall's view that the scarab was made in Egypt seems preferable.

[2] *P. of M.*, i, p. 578, Fig. 423, *b*. From *tholos* ossuary of Siva.

[3] E.g. Tomb of Zer (Petrie, *R. Tombs*, ii, Pl. VI).

[4] Drawn for me by M. E. Gilliéron, fils. Compare Xanthudides, *op. cit.*, Pl. VI

The evidences of this persistent influence show that the new political conditions did not affect the intercourse between the Nile Valley and Crete. Mena's conquest of the Delta seems, indeed, to have been 'legitimized' by his marriage with the Saite Princess Hetep, who brought with her a number of native attendants, so that, as we see from her tomb at Abydos, 'the domestics and harem of the King belonged to Neith-worshipping Libyans'.[1]

Fresh examples of proto-dynastic stone vases from Knossos.

Vases of hard materials, maintaining the tradition of the pre-dynastic fabrics, continued to be imported, and a bowl from the site of Knossos of hornblende porphyry ascribed to the Second Dynasty has been already illustrated.[2] Copies of proto-dynastic shapes also begin to occur executed in variegated native rocks. But we are once more confronted with the remarkable phenomenon that hitherto the only find-spot of these in Crete has been the site of Knossos.

Carinated bowls.

This evidence of Egyptian contact attains a maximum in the great days of the Fourth and Fifth Dynasties, an epoch of much ship-building activity on the part of the Pharaohs.[3] Several more fragments have come to light of fine carinated bowls of translucent diorite. These, as already shown, are hardly distinguishable in form from those from the tomb of King Sneferu (Snofru), *c.* 2840–2820 B.C.,[4] or the Temple of King Sahurè (*c.* 2673–2661). But a special interest attaches to the fragment of a similar bowl in 'liparite', the obsidian of the Aeolian Islands, already illustrated,[5] from the fact that although executed with the finish and sharply defined carination of these royal Egyptian models there is every reason for supposing that it was actually made on the site of Knossos. This variety of volcanic glass is unknown in Egypt, but a large lump of it in its natural state, 43 centimetres high, was brought to light beneath a M. M. II floor in the N.W. Quarter of the Palace, and, difficult to attack as is this material, there is evidence that a series of exquisite works were wrought out of it by the Minoan craftsmen at a later date, including the beautiful *Dolium* shell found at Hagia Triada.[6] A proof of the vogue of these carinated bowls at Knossos during the age

Liparite vessels.

[1] Newberry, *P. S. B. A.*, 1906, p. 69, n. 8. The 'Narmer' of the numerous tombstones there found is, as Newberry has shown (9th Address to Section H, Brit. Ass., 1923, p. 22, n. 21), identical with Mena.

[2] *P. of M.*, i, p. 67, Fig. 32.

[3] See Borchardt, *Grabdenkmal des Königs Sahure* (Leipzig, 1913), and Assmann's Commentary.

[4] See *P. of M.*, i, pp. 85, 86, and Figs. 54, 55.

[5] P. 86, Fig. 55 (restored section of bowl), p. 178, Fig. 127, *e*.

[6] Part of an ewer with spiraliform reliefs of early M. M. III date was found in the N. Lustral area. *P. of M.*, i, p. 412. A pear-shaped 'rhyton' from Tylissos affords on the other hand a magnificent example of a Minoan work in the black obsidian of Melos.

that immediately precedes the construction of the Palace as we know it is afforded by the occurrence there of imitative forms in the finest polychrome ware.[1] As already noted, moreover, the bowl of *lapis Laccdaemonius* found in the Royal Tomb at Isopata that had been twice altered to suit Cretan fashions was itself a derivative type dating from a time when Mainland connexions had made that material accessible to the Minoans.

It may be confidently asserted that the fragment of the liparite bowl which so accurately reproduces the Egyptian diorite models cannot be separated from them by any long interval of date. At the same time the technical perfection required in order to attack such a very refractory material makes it hard to believe that the craftsmen who wrought such work had not served a long apprenticeship to Egyptian masters. Or were Egyptian lapidaries actually employed by the early priest-kings at Knossos itself?

Egyptian 'Moustache cup' from Knossos.

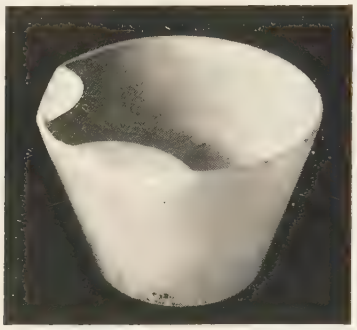
A singular addition to the series of early Egyptian vessels from this site was noted by me during the investigations of 1922, while examining some remains from an unstratified deposit West of the Palace. This is a fragment of a large diorite cup, with an ear-like projection turned inwards. The fragment at once recalled an almost perfect specimen of a cup of this type in alabaster, in the Ashmolean Museum at Oxford, from a Fourth Dynasty tomb at El Kab, which is placed beside a restoration of the Knossian specimen in Fig. 27. The soapy texture presented by the diorite material recurs in the case of a Fifth Dynasty ointment pot in the Ashmolean collection. In faïence the type survived in connexion with the worship of Hathor to the beginning of the Eighteenth Dynasty, as is shown by the occurrence of part of the rim of a cup of this form in that material in the temple of Deir-el-Bahari,[2] where it formed one of a series of fragments of vessels made of similar fine blue faïence, depicting Hathoric plants and emblems. It seems probable that the form originated in copper-work, the ear-shaped projections of the rim being folded inwards, and the object of these may well have been convenience in drinking some beverage containing floating objects. Our 'moustache cups' of a former generation present an obvious analogy, but the ancient Egyptians did not wear moustaches. It is possible, as the Deir-el-Bahari evidence suggests, that such vessels were designed for some special religious ceremony. In any case they are so rare in Egypt itself that the type has remained practically

[1] E.g. *P. of M.*, i, p. 178, Fig. 127, *f.* Others are known.

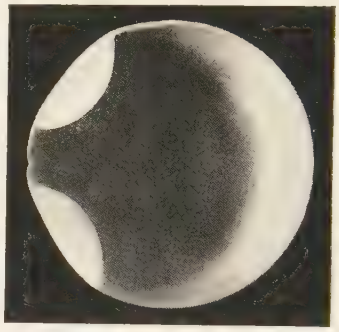
[2] *The Eleventh Dynasty Temple of Deir-el-Bahari*, Pt. III, Pl. XXVI contained in Group I, but the shape is unrecognizable in the figure. Dr. H. R. Hall, however, called my attention to the object, which is in the British Museum.

unpublished, a fact which makes the discovery of a specimen at Knossos the more remarkable.

The remains of these diorite and other vessels of Early Dynastic fabric on the site of Knossos were in no case associated with floor deposits of the

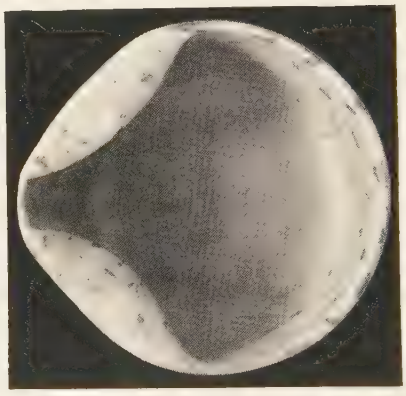


a 1.



a 2.

b 1.



b 2.

FIG. 27. EGYPTIAN EARED CUPS: *a* 1–2, ALABASTER, EL KAB IVth DYNASTY. *b* 1–2, DIORITE, KNOSSOS, RESTORED.

Palace itself. Examples of such exotic works at times, owing to the durability of the material, undoubtedly survived as heirlooms, like the bowl of Spartan porphyry found in the Isopata tomb. But the evidence is cumulative, and the only legitimate archaeological deduction is that these vessels at any rate reached Crete at the time when their fabric was in vogue with the Egyptian lapidaries, in the case, that is, of the fine diorite bowls and cups, during the culminating phase of the Early Kingdom of Egypt from the Fourth to the Sixth Dynasty.

Knossos a staple for proto-dynastic Egypt.

The conclusion is unavoidable, that, long before the foundation of the Great Palace as we know it, the site of Knossos was playing a historic part as a centre of connexions—not perhaps exclusively commercial—between the Minoan Priest-Kings and official Egypt of which we have other later indications.

Indications there of earlier residential seats.

The explanation of this must be sought in the traces, to which the most recent exploration has now added, of at least one earlier residential seat on this spot, whose occupants had made it the goal of an ancient trade-route from the Land of the Pharaohs. Unfortunately the later activities of the Minoan builders have largely destroyed or obscured the pre-existing remains. As has been the case with many ancient foundations, the Palace site of Knossos devoured itself. It has been already shown that early in M. M. I the whole summit of the hill was levelled away to the Neolithic surface to provide space for the Central Court and the four-square arrangement of buildings round.[1]

[1] So,too, at a somewhat later date apparently, the Great Cutting was made on the Eastern slope to contain the 'Domestic Quarter'. Along the outskirts of the *tabula rasa*, thus produced in both regions, house foundations and other remains have come to light attesting the extent of the Early Minoan settlement. Underneath the West Court and outside the South Wall of the Palace are also remains of houses of that Age, while on the East slope an important Early Minoan stratum underlies the N.E. region. The Early Hypogaeum beneath the S. Porch must be also classed among remains of this time.

FIG. 28. BASE OF PORPHYRY VASE, FROM KNOSSOS (SEE ABOVE, P. 31).

§ 35. Transit Road from Knossos across Central Crete to Port on Libyan Sea.

Early Connexions with Nile Valley; Monumental features of Southern approach at Knossos—the recent discoveries; Exploration of Transit Route—Minoan built Way; Trunk line at Knossos, Southern and Eastern roads; Pedeada track—the 'Great Palace' of Seraïa; Minoan Way across Lasithi Range and its defensive works; Minoan Arkhanes and its 'Summer Palace'; Circular Well-house; Contemporary parallel of Mycenae tholoi; *'The Great South Road' from Knossos; Branch road to 'City of Refuge' on summit of Juktas; Main S. line over Col of Juktas; Votive Cave of Stravomyti; Cretan Dittany; Road remains at Visala—extensive Minoan site; Kanli Kasteli: Homeric Lykastos(?); Pyrgos—Minoan burial-chest and relics illustrative of Egyptian relations; Remains of Minoan road near Panasòs; Central Guard-station at Anagỳri; Systematic defence of communications; Evidences of strategic control by Priest-Kings; Early* tholoi *guide to ancient route to S.W.; Primitive remains at Christos: Descent to Libyan Sea; Small Minoan Port at Trypeti; Fragment of inscribed Larnax; Lebena; Fair Havens; Euroclydon and Borràs; Deserted Coast-lands; Experience of South Easter; Cape Lithinos and the* ΑΙΣΣΗ ΠΕΤΡΗ*: Harbour of Matala,—evidence of considerable submergence: Bay of Komò, first shelter from Notos after Cape Lithinos: Minoan Port here and extensive settlement; Higher and Lower Acropolis; 'The Custom's House'; Starting-point of Menelaos for Egypt; Minoan road system key to uniformity of Culture; Extended to Mycenae; Roman comparisons—Imperial spirit.*

Cumulative evidence of early connexions with Nile Valley.

Cumulative evidence has been given in the preceding Sections of relations between Crete and the Nile Valley going back to a time earlier than the Conquest of Mena and continuously operative during the Early Dynastic period of Egypt. We have already had glimpses in the course of the previous Volume of still more direct connexions between Knossos and the Land of the Pharaohs in the succeeding Age, as illustrated by the discovery of the monument of User and the inscribed lid of the Hyksos king Khyan. To the intensive Egyptian influence on Crete throughout the Middle Minoan Age and the early part of the Late Minoan there will be occasion to return. But, both as regards the earlier and the later

stages of this intercourse, we are struck in the case of Knossos with the same unique phenomenon. Whereas in other districts of Central and Eastern Crete the evidences of this Nilotic connexion are, except as regards certain minor relics, of an indirect kind, it is at Knossos and at Knossos alone, though lying on the North coast of the Island and geographically most removed from Egypt, that we meet with a whole series of objects of first-rate artistic and historic importance directly imported from the Nile Valley.

Clearest indications at Knossos.

The causes which made this Egyptian connexion possible for the great Minoan centre on the Northern coast must be ultimately sought, as already noted, in the physical configuration of this central sector of Crete. As the ancient harbour of Knossos and of the modern Candia is approached from the sea its characteristic aspect becomes clearly visible. The mountainous backbone of the island, which reaches its highest level in the snowy ridge of Ida (8,060 feet) on the West, is here seen to dip down to a comparatively low watershed of undulating ranges, in the centre of which, immediately behind the Minoan site, the peak of Juktas attains a minor height. East of this again at an almost equidistant point the dorsal ridge again attains the considerable elevation of about 7,000 feet in the Lasithi range.

Natural passage from Knossos across Central Crete.

It was not for nothing that Knossos lay in this 'windy gap' of the Island, for here were the most natural crossing points of the broad central region between the Northern and Southern coast-land that brought the Aegean port into connexion with the rich plain of Mesarà and the adjoining havens of the Libyan Sea.

The monumental foundations of what eventually proved to be a stepped portico ascending the Southern slope at Knossos, brought out by the recent supplementary excavations, had for the first time emphasized the importance of the line of approach to the Palace on that side. The dramatic revelations of 1924 further disclosed the existence of a colossal viaduct abutting on the edge of the torrent bed below, and forming part of the terminal section of an important Minoan roadway.

Monumental features of S. approach: recent discoveries.

These remains and those of the 'Caravanserai' by the road-head, with which they were connected, will receive separate treatment in the succeeding Sections, but the sure indications thus supplied of a great transit route across the centre of the Island, starting from the principal seat of its Priest-Kings, made it necessary to undertake a series of exploratory expeditions. The result of these researches, carried out by me at intervals, for the most part during the years 1923, 1924, has been to discover the traces of a Minoan built way that traversed the low ranges of this central sector to the borders of the

Exploration of transit route: Minoan built way.

Mesarà plain and at one point were seen to abut, beyond it, on the Acropolis height of an important Minoan port.[1] (See Diagrammatic Map, opp. p. 71.)

Trunk line at Knossos.

The massive remains of the Viaduct and the greater breadth of the road here—over five metres, as compared with four in the interior tracks—tend to the conclusion that this terminal section was of the nature of a trunk line. It in fact represented the junction of the direct South Road with an important route formed by the convergence of lines leading from Pedeada—the ancient Omphalian Plain—and the regions to the East and the South-East.

Southern and Eastern routes.

A common line of highway must in all ages have ascended the valley immediately above the Palace site of Knossos, where the old Kairatos stream is known as the Speliopotamos from the Greco-Roman rock-tombs, locally called σπήλια, that honeycomb the cliffs. The Minoan Way, indeed, heads in much the same direction as that followed by the modern road. About a mile above, however, the stream turns to the South-West through a rocky chasm spanned by the stately arches of the Venetian aqueduct that supplies Candia with water, and at this point it would appear that the two main lines of Minoan roadway into the interior must have diverged (see Diagrammatic Map, opp. p. 71). The Southern road with which we are mainly concerned would have followed the bend of the stream to the right, making for the lowest pass over the saddle of Mt. Juktas, and immediately passing, near the village of Hagia Irini, the entrance to the underground quarries that provided Knossos with its best materials.

On the other hand, the South-Eastern route if, as seems probable, its main line approximately followed the medieval track through the neighbouring village of Skalani, would at that place have brought the great Palace into direct connexion with a sister foundation of some importance.

Pedeada track: 'The Great Palace' of Seraïa.

On the Western outskirts of this village, which overlooks the descending course of the old main track to Pedeada, considerable remains of a Minoan building have been demolished for the sake of their materials within the last few years. The mischief had been already done when I visited the site in 1923, but it was possible, by means of the trenches out of which the peasants had grubbed the better blocks, to trace the foundations of Minoan wall-lines for a distance of about 100 metres of the N.W. front

[1] Preliminary notices of these discoveries have appeared in *The Times*, August 28, 1923, and June 11, October 16, 17, 1924, and the *Morning Post*, July 23, 1924. On my journeys undertaken in 1923 and 1924 to explore the Transit Route I had the valued assistance of Dr. D. Mackenzie and Mr. Piet de Jong, architect of the British School at Athens, as well as of my foreman Manolis Akumianakis ('Manolaki') whose lynx-eyes nothing Minoan escapes.

and 95 metres of the face to the N.E., and further to copy some of the signs on the base-blocks,[1] which answer to those of the Early Palace at Knossos. This spot is still known to the peasants by the significant name of *'στὰ Σεραΐα*[2] ('The Serai') or *Μεγάλο Παλάτι* ('the Great Palace').

Minoan road across Lasithi range.

This considerable work gains additional importance from the position in which it lies, dominating what seems to have been a main artery of communication, through Pedeada, with the East of the island at a point where it approaches the Great South Road. In 1895, in company with Professor Myres, I had in fact already noticed the existence of an ancient roadway,[3] doubtless the continuation of such a line, which makes its appearance skirting the North-West escarpment of the Lasithi range that borders the Pedeada plain on the East. 'This ascends to a *col* which from time immemorial must have given the main access on this side of the extensive upland plain that forms, as it were, the citadel of the whole range. The deep cutting of the road at the summit of the pass and the broad terrace formed by it in other parts of its course point to long use and to the former importance of its traffic, though it is now little more than a track.' The traces of the road can be followed across the upland plain of Lasithi, and thence 'ascending the Eastern steeps of the basin by a series of magnificent zigzags, supported below by massive terrace walls of the same primitive masonry as that of the Minoan[4] strongholds on the route and secured against rolling boulders as the turning-points by similar walls above'. Traversing the high plateau of Katharò, it descends towards the rich Kritsà valley, its zigzags crossing and re-crossing the modern route, while, here again, at two points it is protected by defensive works.[5]

Its defensive works.

The hollow passage through which the existing track approaches the village of Skalani, after passing the site of Seraïa, may well, as in other instances of such 'Holloways', supply a record of an ancient road.

From near this place a branch route, more or less corresponding with

[1] The signs noted are ✕ (Knossos, *P. of M.*, i, Fig. 99, No. 23, and cp. Phaestos, *Mon. Ant.*, xii, p. 90, 3), or ⊦ (Knossos, Nos. 18 and 12*a*, Phaestos, 9), ⊦, variant of preceding, and ⋋ (K. 26) and ⊬ conjoined (K. 27 Ph. 20 and K. 33 Ph. 1).

[2] Cp. *Seraglio*.

[3] See our joint communication to *The Academy*, June 1, 1895, pp. 469. 470, entitled *A Mycenaean Military Road in Crete*.

[4] 'Mycenaean' was the word naturally used in 1895.

[5] Referred to below, p. 78. Two further Minoan Ways are mentioned in the joint communication to *The Academy*. One runs from the Kritsà valley over the South-Eastern spurs of Lasithi towards the village of Malles (Malla). The other leads towards Mirabello. Both are accompanied by defensive works. Other traces of Minoan Ways, with *phrouria* near Zakro, are referred to in my letter to *The Academy* of July 4, 1896, p. 18.

Minoan Arkhanes and its 'Summer Palace'.

the modern mule track, must have brought the main road from Knossos in this direction into connexion with what seems to have been a still more important Minoan settlement, on the site at present occupied by the flourishing country-town of Arkhanes. Here was not only the votive station of Trullos, where the inscribed stone ladle was discovered,[1] but

FIG. 29. CIRCULAR CHAMBER OF SPRING-HOUSE, ARKHANES (FROM S.W.: DESCENDING STEPS TO LEFT).

the actual remains of what seems to have been a considerable building—a 'Summer Palace', we may venture to suppose, of the Priest-Kings. The houses of the central part of the village are seen to rest on the base-blocks of this building (see Suppl. Pl. XVI) and some limestone orthostats also occurred. In cellars of the lower part of Arkhanes Minoan walls of solid structure are preserved, showing seven or eight roughly horizontal courses of limestone blocks, and a little to the North-East of these, during a visit to the site in 1922, I was shown a ring of great hewn blocks that had come out in the course of recent building operations.

Circular well-house.

[1] *P. of M.*, i, p. 623 seqq. For Trullos see Dr. Xanthudides, Ἐφ. Ἀρχ., 1909, p. 180 seqq.

The clearing of this, a work of some difficulty owing to the accumulation of fallen stonework within and the house walls built above, brought to light a circular well-house or reservoir [1] of the greatest interest (see Fig. 29, and Plan and Section,[2] Fig. 30). The first three courses of its masonry had a distinct outward slope, but the large blocks of the fourth course, several of which were over 2 metres long with a height of about 60 cm., showed a slight slant inwards. The lower courses formed the actual basin, and were sunk beneath the original surface of the ground, with a backing of rubble masonry.[3] The bottom of the basin itself was covered with small pebbles, and somewhat hollowed out on the S.E. side where the principal spring seems to have welled up. A block of the fourth course on the N.W. was grooved for the outlet,[4] the channel of which widened beyond beneath a large flat slab. Immediately East of this were five descending steps which went down to the original water level. Their mean width was about 1·5 metres. The circular tiers of masonry that had existed above ground had been completely ruined, but from the mass of fallen blocks found within there can be little doubt that the building was originally domed above on what has been called the 'horizontal' system, but in which the courses as they ascend are in reality increasingly tilted up behind by wedges of stone.[5] The reservoir would, therefore, have been covered by a structure exactly resembling the great beehive tombs of Mycenaean Greece, and the height of which if, as normally the case, equal to the diameter on the ground level, would have been 5·25 metres, or about 17 feet above the surface of the water.

Contemporary parallel to *tholoi* of Mycenae.

The pottery found in the lowest stratum of the basin and throughout consistently belonged to the very beginning of the Late Minoan Age (L. M. I *a*). It would therefore appear that the form of structure, whether in any case used for sepulture or not, was in vogue in Minoan Crete as early as the parallel *tholoi* of Mainland Greece.[6] This conclusion, it will

[1] The lower part of a circular reservoir of rubble masonry was found by Dr. Hatzidakis in the largest house at Tylissos where it was a L. M. III*b* intrusion. This, however, was a recipient, filled by a conduit supplied by a spring outside, and not a well-chamber.

[2] Executed for me by Mr. Piet de Jong, Architect of the British School at Athens.

[3] Owing to the house walls and a roadway on the N.W. this backing could only clearly be made out at the Southern point of the circumference, and here only for somewhat over a metre.

[4] About 12 cm. wide by 18 cm. high.

[5] See on this feature of *tholos* construction Dörpfeld's observations, *Ath. Mitth.*, 1908, p. 303 (Kakovatos) and K. Müller, *op. cit.*, 1909, p. 324, n. 1 (Heraeon *tholos*). A similar feature presented itself in the vaulting of the *dromos* of the Royal Tomb at Isopata.

[6] See above, pp. 43, 44.

be seen, greatly enhances the probability that some real connexion exists between these later vaults and the primitive beehive ossuaries of Mesarà, described in the preceding Section.

The Minoan predecessor of Arkhanes, with its princely residency and votive station, which illustrates the cult of Juktas,[1] must have stood in a peculiarly close relation to the sanctuary of the Goddess on the neighbouring peak. But, as we shall see, Knossos had its own approach to that sanctuary, in direct connexion with the main Southern road. From the point of junction of the two road-systems by Hagia Irini there can be little doubt that the course of this road followed approximately the line taken by the modern mule-path that traverses the saddle of Juktas on its way to the villages of the glen beyond. At the village of Sylamos, indeed, this runs past a Minoan station where, in addition to large blocks from buildings, have occurred sections of terra-cotta water-pipes resembling those that secured the water-supply of the early Palace at Knossos.[2]

The great south road from Knossos.

Sylamos.

From this site the traditional track bears somewhat to the West, crossing by an easy ascent the saddle of Juktas at its lowest point, not far from the village of Vasiliès. The manner in which this track is hollowed out in places points to its antiquity, but a clearer proof that the Minoan road passed approximately this way is supplied by the actual remains of a branch line along the *col*, ascending from the shoulder of Juktas and once certainly linked with it. Here, overlooking the Western steep, are remains of what seem to be a Minoan guard-station, and from this point recent explorations of the Northern spur of the Holy Mountain have made it possible to trace for a considerable distance the undoubted course of a Minoan road-line—the boulders of its outer supporting terrace black with age and exposure—zigzagging up the rocky steeps by easy gradients,

Branch road to Temenos on summit of Juktas.

[1] *P. of M.*, i, p. 623 seqq.

[2] *Ib.*, p. 142, Fig. 103, and p. 143, Fig. 104. There is a good spring at Sylamos, but this was not the most probable source of the supply of drinking water for the Palace itself. There is a much more copious spring at Spilia on the right-hand side of the modern road to the S.E. of the point where the Venetian aqueduct spans the Kairatos. Part of the supply of the Palace and town may, however, have been drawn from somewhat farther afield. About three miles above H. Irini the stream runs through an almost impassable chasm, on the farther side of which, at a spot called Karidaki, marked by the ruins of a medieval church, is another abundant source of ice-cold water that supplies an important branch line of the aqueduct. Here were not only terrace walls but remains of good Minoan structures belonging to a considerable building, and it looks therefore as if this source had been jealously guarded. The site is about a mile E. of Sylamos. Sherds collected there were M. M. III and L. M. I. The springs in the immediate neighbourhood of Knossos contain too much gypsum to afford good drinking water.

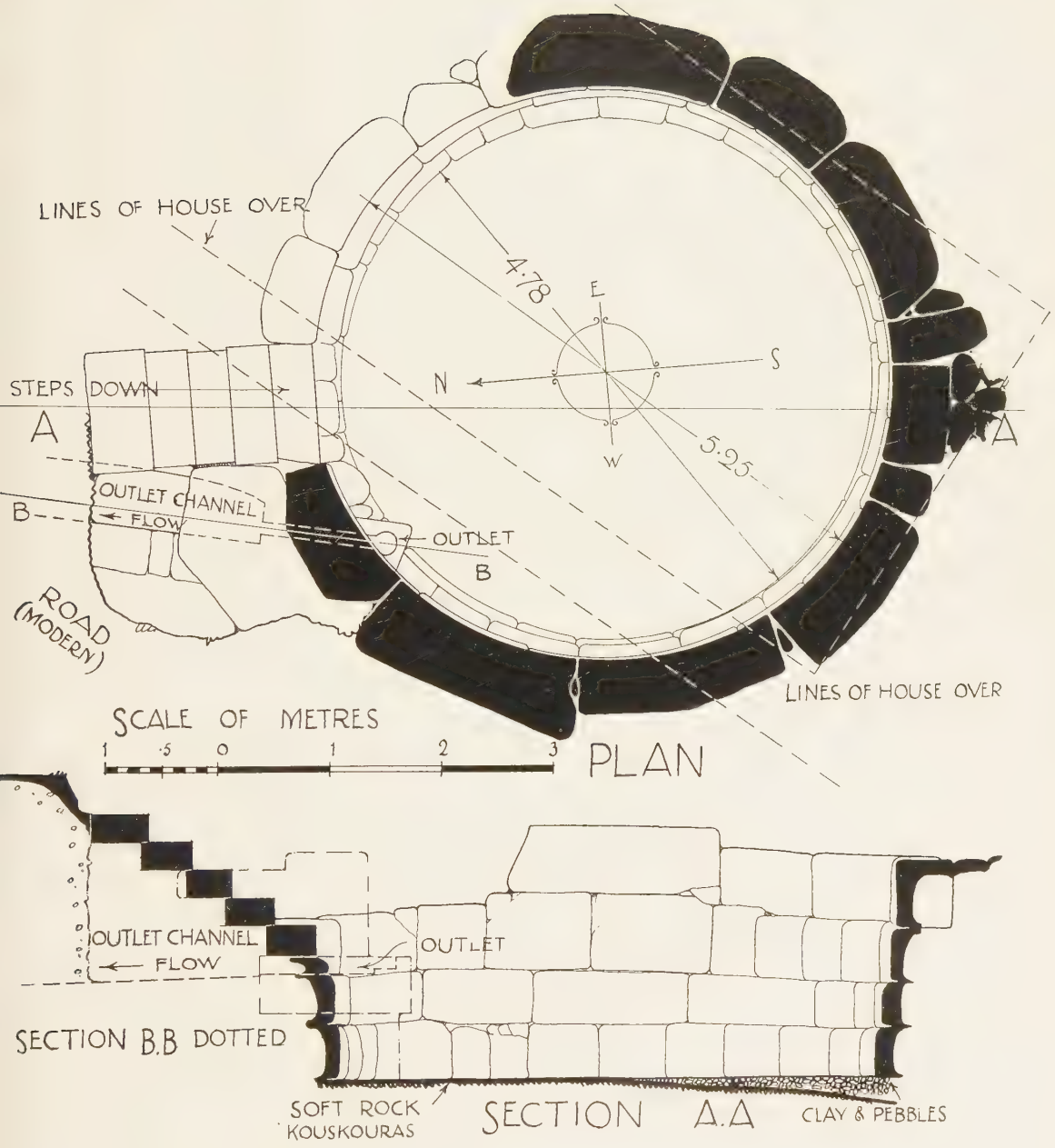


Fig. 30. Plan and Section of Circular Spring Chamber, Arkhanes (by Piet de Jong).

with traces of steps at intervals. The appearance of this mountain road curiously recalled the remains observed many years since of similar built ways with terraces above and below, ascending and descending the steeps of Lasithi on their way to the Southernmost region of the Island.[1] The goal in the case of Juktas was the walled enclosure of what may have been a Cretan 'City of Refuge', about 1,300 feet above the guard-station, clustering round the ruins of the Minoan sanctuary on the peak, where previous excavation had brought out the *Casa santa* of the Goddess.[2]

It appears, moreover, that the initial section of this branch line also served the Minoan town that occupied the site of Arkhanes. From the East end of the first of the zigzags up the peak is traceable the raised course of a Minoan road descending the mountain steep in that direction, a little to the right of the modern track from the village which leads by much the same route across the *col* of Juktas.

Main S. road over *col* of Juktas.

The main route, as already noted, passed over the lowest point of the mountain saddle to the North, at a height of about 1,000 feet above the sea-level, looking down on the valley of the Platyperama. Thence, by much the same slanting descent as the modern mule-path, it reached a limestone steep by the village of H. Vlasis, where distinct remains of its supporting terraces are visible (Fig. 31). It continues beyond on the more level surface as a low mound with a walling of rough blocks at its side, the old road surface, as usual in such cases, being hollowed out by the mule-path that still follows its course. About a quarter of an hour, however, beyond the village of H. Silas, where the modern track diverges to the right on its way to Kanli Kasteli, the remains of the ancient Way are seen heading towards the important Minoan centre of Visala. Its route is somewhat more to the East, and passes between an isolated peak known as Juktáki, or 'Little Juktas', and the precipitous flank of the mountain itself. Here, immediately below the spot where on the Southern summit of the ridge the pilgrimage shrine of 'Christ the Lord' perpetuates the tradition of the Cretan Zeus,[3] the lower face of the limestone cliff shows the opening of a descending cave, which from its double entrance above and below and tortuous windings is known as Stravomyti—'crooked nostril'. It is nowhere spacious, and, about 100 feet in, becomes almost a sheer pit,

Stravomyti votive cave.

[1] See above, p. 63.

[2] *P. of M.*, i, p. 154 seqq. At the time when that account was written the Northern approach to the walled enclosure had not been observed. The rough walling is of M. M. I date.

[3] *P. of M.*, i, p. 154.

but the abundance of ceramic remains within shows that from the earliest Minoan times it had been a votive station.[1] In the almost inaccessible crevices of the rock above the upper opening of the cave on the cliff side

Cretan dittany: botanical misuse of name.

FIG. 31. TERRACE WALL ABOVE OLD ROAD-WAY, NEAR H. VLASIS.

grew tufts of the true Cretan dittany, the celebrated medicinal herb which was said to enable the wild goats to eject poisoned arrows. It also eased the labour of women, who wreathed with it the images of the native Artemis,

[1] Amongst the sherds excavated by me in 1898 were bucchero-like specimens of E. M. I fabric and part of a plain lug-eared vessel of E. M. III type, together with Middle and Late Minoan specimens. Other fragments were found during a more superficial exploration in 1924, several of them Early Minoan.

Diktynna. Its leaves, which have been used for decoctions down to modern times, are round like those of penny-royal,[1] and perhaps may allow us to recognize in it the curious round-leaved plant with a hoopoe perched on it that appears on a fresco of a pavilion at Knossos, described below.[2] The leaves are lilac-veined and covered with soft downy hairs answering to Virgil's description.[3] The flower which emerges from a cluster of overlapping bracts is labiate, and is also of a delicate purple hue. To the Cretan peasants it is still known as *δίκταμνο* and also as *ἔρωνδα* (*ἔρωτα*) —love.

These details may be worth mentioning since, by a curious botanic freak, the name of dittany has been usurped by a quite different plant.[4]

[1] Theophrastus, *H. P.*, ix. 16, 1, already observes of the leaf that it is *παρόμοιον τῇ βληχοῖ*, 'like penny-royal', and the observation must strike any one who sees dittany for the first time. (See p. 111, Fig. 50.) Meursius, *Creta*, p. 109–11, has collected many ancient references to this herb.

[2] See below, p. 110 seqq. and p. 112, Fig. 51. The stem, however, is much thicker. A sprig of dittany, not then in bloom, gathered by me during my first visit to the cave in 1898 and sketched at the time, is reproduced in Fig. 50, p. 111 below, for comparison with the round-leaved bush of the 'partridge' fresco.

[3] *Aen.* xii. 412 seqq.:

Dictamnum genetrix Cretaea carpit ab Ida,
puberibus caulem foliis et flore comantem
purpureo; non illa feris incognita capris
gramina, quum tergo volucres haesere sagittae.

[4] Thanks to the kind direction of Dr. A. B. Rendle, Keeper of the Botanical Department of the British Museum, I have been able to trace the origin of this curious misappropriation of an historic plant-name. Caspar Bauhin, in his ΠΙΝΑΞ *Theatri Botanici* (Basel, 1523, p. 222), after duly mentioning *Dictamnus Creticus* adds at the bottom of a column 'Dictamnus albus vulgo, sive Fraxinella'. This points to a popular misnomer, probably of early currency, since this latter plant is known as *δικτάμι* or *διπτάμι* in dialects of Continental Greece (Th. Heldreich, *Τὰ δημώδη ὀνόματα τῶν φυτῶν* (ed. Sp. Miliarakis, Athens, 1910, p. 19). But the curious point is that Linnaeus (referring to Bauhin) preferred this later entry, and *Fraxinella* has consequently flourished since, by full right of scientific nomenclature, as *Dictamnus* generically, while the true dittany appears as a species of *Origanum* or marjoram. Turner, *Herbal* (1568), writes that he has seen dittany 'growynge in England in Maister Riches' gardin naturally, but it groweth nowhere elles that I know of saving only in Candy'. Curtis, *Bot. Mag.*, ix (1795), p. 298, notices that it is still used as a medicinal herb in England, and gives, Pl. No. 298, a correct view of the Cretan *dictamnus*. In Sir A. Hort's translation of Theophrastus (1916), vol. ii, *Index of Plants*, p. 445, a curious confusion occurs. *Origanum dictamnus* is described as the true dittany 'with which Cretan dittany has nothing in common'! Even the late Mr. Trevor Battye, who recently travelled in Crete to investigate its fauna and flora, *Camping in Crete* (1911), to give an idea of this plant (which he did not see), refers, p. 46, to *Dictamnus fraxinella*. It is discreditable to botanists that a herb of such literary celebrity and so well described by ancient authors as the Cretan dittany should be thus supplanted. To add to this history of mysti-

Diagramatic Map of Central CRETAN Section
Shewing conjectured course of Minoan Transit roads and distribution of early 'Tholos' ossuaries
DIA (STANDIA)
Paximadi
C. Apiri
Panagia
H. Georgios
C. Rodare
AEGEAN SEA
C. Stavros
H. Pelegia
Minoan Seaport
C. Akhonos
Akhlada
Rogdia
Source of Arniyro
Stavromenos
Minoan Port
CANDIA
Harbour Town of Knossos
R. Kassobarios
Anct. Mauratos
Kakon Oros
Quarry beneath sea-level
Minoan harbour
Nipou Khani
Pyrgos
Gurnes
Anapolis
Vathia
Skotino
Kassaba
Isopata
Zafer Papoura
Makryteichos
Phodeli
Phortatsa
KNOSSOS
Anct. Quarries
Gazi
Geophyrakia
Vasilies
H. Irini
Skalani
Mt. Strongylo (Strongyloli)
R. Gazanos
R. Kephalas
Sharno
Serdia
Kadidaki
PEDEADA
PYLISOS
MALEVISI
H. Vlasis
Mt. Iuktas
Arkhanes
H. Silas
1750
Avthentis Christos
Khudetsi
Pendamodi
Kanli Kastelli
VISAIA
(Sta Visala)
Il Myron
[Anct. Rhaukos]
[Anct. Lykastos?]
TEMENOS S.E.
Krusonas
Daphnaes
Veherato
Pyrgos
Sinapi
Avgheniki
H. Georgios
Late Hellenic Bridge
Damenia
Mt IDA
Idaean Cave
NIDA PLAIN
Mt. Kuduni
Arkadi
H. Thomas
2000 [Hellenic Remains]
Mt Axikephala
Prinias
H. Varvara
Megali Vrysis
Melidokhori
Gergeri
Zaro
Kamares Cave
Kamares
Kuriès
Kalathiana
Apomarmas
Grantos
Tsifut Kasteli
(Ven. Castel Bonifacio)
Akria
Ligortino
Asimi
MONOPHATSI
(Venetian Bonifacio)
Preforia
Mulia
Vali
Ruphas
H. Deka
Sife
Ambelusa
Gortyna
Kharakas
Pyrgos
R. Magaros
R. Phanuiana
R. Hieropotamos
Pyrgos
Vori
H. Onuphrios
Kalyvia
Myres
Kaperiana
MESARA
Dhakones
H. Irini
Lukia
Dybaki
Salemi
Anoja
Porti
Kumasa
Mt. Kophino
Platanos
PHAESTOS
H. Ioannis
Siva
Bobia
Plora
Vasiliki
H. Triada
Kamilari
Roman Quarries
Christos RANGE
GULF OF
Pacheia Ammos
Miamu
H. Kyrillos
Sphakoryaki
Submerged Reef
Pitsidia
KOMO
[Minoan Port]
Matala
(Anct. Matalia)
Rock Tombs under sea-level
Arsenal of Gortyna
Hodigitria Mon.
ASTERUSIA
Trypeti
Small Minoan Port
C. Trakhyla
Anct. Lasaia (Lasea)
Traphos
Fair Havens [Kaloi Limniones]
St. Pauls Island
Mediaeval source in Sanctuary of Asklepius
Anct. LEBENA (Leda)
C. Leon
Megalonisi
Papadoplaka
C. Lithinos
[ΛΙΞΗ ΠΕΤΡΗ]
MEDITERRANEAN SEA
Magnetic North
Remains of built Minoan Way
Conjectured Course
Early Tholos ossuaries
Sepulchral Cave or rock shelter
Votive Cave
Minoan Town or Settlement
Palace or Residency
Town with Palace or Residency
Minoan remains
Minoan Cemetery
Modern Mule-tracks approximately following ancient lines

It was, indeed, Linnaeus who transferred its generic name to the 'burning bush' of our gardens,[1] the leaves of which, as its name *fraxinella* implies, are like those of the ash.

At a spot where a spring gushes out on the rocky slope below the cave, the existence of a small Minoan station is evidenced by potsherds, and the old road must have passed near this on its way across a tributary stream to the height beyond the hamlet of St. Anna, on the East slope of which we were able once more to observe its traces (see Diagrammatic Plan, facing).

Road remains at Visala.

At the point where it reaches the deserted site of Visala, its junction with a branch line leading from the S.E. is clearly visible, and the section of its further course that skirted the old town on its Southern border is specially well-preserved. Here are clearly visible the characteristic features of the Minoan Way[2]—its upper protecting terrace and lower supporting wall, both of large blocks, the latter presenting four or five courses (see Fig. 32). The width of the roadway itself from its outer edge to the inner terrace wall was, in agreement with measurements taken at other points on the route, about 4 metres, but showed here a variation of from 3·80 m. to 4·30 m.

Extensive Minoan site.

The site itself, as its name Visala[3]—'the potsherds'—implies, is strewn with Minoan pottery, extending from the Eastern border of the settlement (where the ground falls rapidly) for a distance of at least a third of a mile Westward. They are still found on the level area beyond the point where, beneath the ruined church of H. Jannis (see Sketch-Plan, Fig. 33), an abundant spring gushes from the overhanging rocks. The pottery goes back to the Second and Third Early Minoan Periods, but of specially frequent occurrence are the remains of great oil-jars of the transitional phase that marks the close of the Middle and the beginning of the Late Minoan Age. Some fragments still showed the tradition of the 'medallion' decoration, and rope ornament occurred of the kind so frequent at Tylissos. Evidently this

fication, the early drawing in the Illustrated Codex of Dioscorides (vol. i, Tab. 99) represents another quite different plant, supposed to be a kind of calamint or wild basil

[1] So called from the fact that its flowery spikes contain in their seed-cases so much volatile oil that in a dry season a lighted match will cause them to flare up.

[2] See the references in *The Academy* of June 1, 1895, and July 4, 1896, to earlier explorations in East Crete, p. 63 above.

[3] 'στὰ Βίσαλα : the name Βίτσιλα also occurs. Dr. A. Taramelli was the first to call attention to this site (which I came upon independently) in *Mon. Ant.*, ix, 1899 ; *Ricerche archeologiche cretesi*, p. 342 seqq. He regarded it, however, simply as the lower town of a 'Mycenaean' Acropolis situated on the double peak of Kanli Kasteli. That there may have been some very early stronghold there is not impossible (v. *infra*), but Visala must be regarded as an independent entity.

had been the centre of a rich oil-producing district, and the meagre olive growth of the modern landscape suggests that in Minoan times there had been a greater rainfall than now.

FIG. 32. PART OF COURSE OF MINOAN BUILT WAY SHOWING UPPER AND LOWER TERRACE WALLS, VISALA (FROM A DRAWING BY PIET DE JONG).

The importance of this Minoan centre is further brought out by the appearance on the highest part of the site, overlooking the steep hill-side to the East, of lines of well-hewn limestone blocks,[1] clearly belonging to a small Palace, the residence of some local prince or governor. In the

[1] This must be the building noted by Taramelli, *op. cit.*, p. 347, Fig. 21 (on p. 346). The plan, however, can only be rendered intelligible by excavation.

neighbourhood of this and lower down the gradual incline on which the town was built, the whole or part of scattered column-bases of limestone and richly coloured black and orange conglomerate tell of good constructions.[1] The Minoan town was wall-less and open, and its position on a gentle slope,

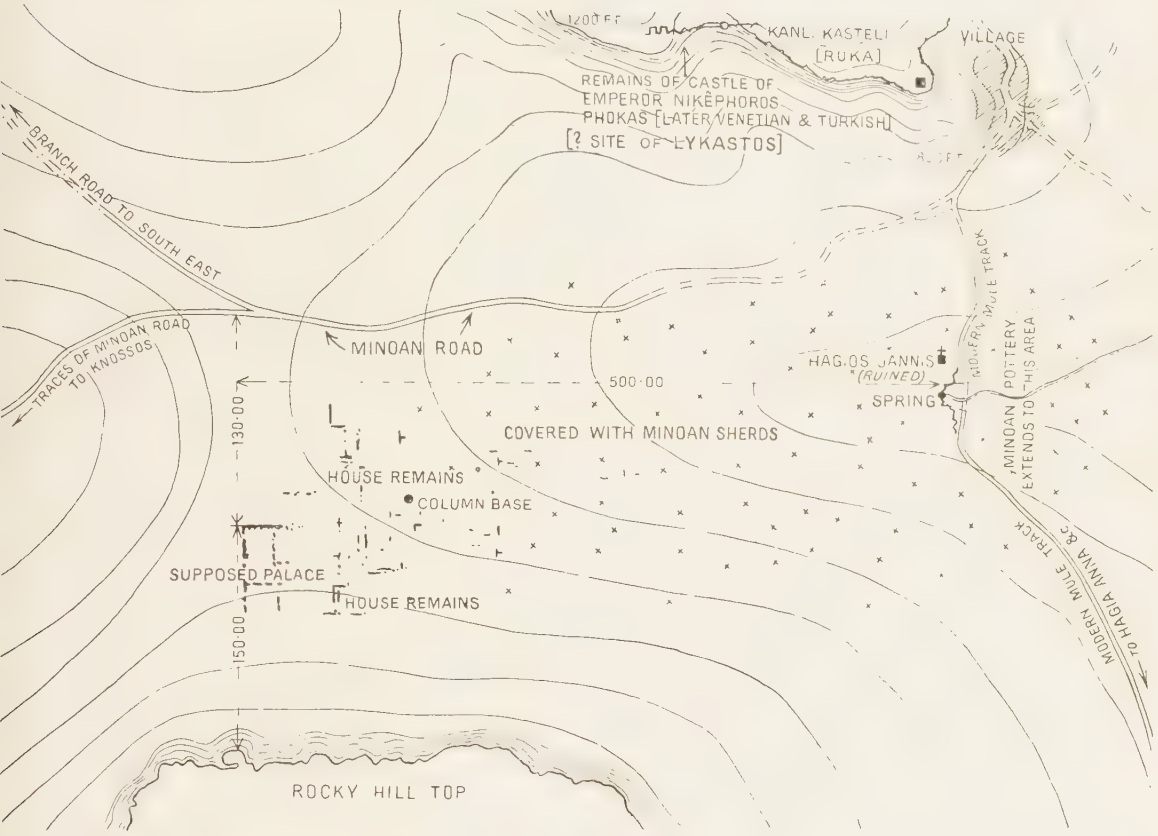


FIG. 33. SKETCH-PLAN OF MINOAN SITE OF VISALA, WITH KANLI KASTELI.

between the rocky ridge above H. Anna on one side and the castellated crags of Kanli Kasteli on the other, speaks of civilized conditions.

The course of the ancient Way winds round the N.W. spur of the Castle hill to the modern village, in the open spaces and neighbouring

[1] These bases are either of the plain cylindrical or the stepped form showing a smaller disk above. Two of the latter form are illustrated by Taramelli, *op. cit.*, p. 347, Fig. 22, that to the left is still in the position in which he found it. I noted four others, one a broken cylinder of conglomerate in the ruined Church of H. Jannis (St. John the Baptist). The upper surface of the largest observed, also of conglomerate, was 48 cm. in diam., its lower part 70 cm., and its height 42 cm., the upper prominence being 12 cm. high.

Kanli Kasteli: Lykastos.

fields of which we searched in vain for Minoan sherds. Nothing can be greater than the contrast between the site of Visala and the two-headed height of Kanli Kasteli,[1] crowned with its medieval fortifications, that frowns down on its Southern border. The twin peaks of this, rising to a height of 1,200 feet above sea-level, and standing well away from Juktas, form the key position of all this inner region, and for that reason were chosen by the Emperor Nikêphoros Phokas, after wresting the island from the Arabs, for his great fortress of Temenos, which has given its name to this Cretan province. Later on, as the Venetian Rocca,[2] it made such a desperate defence against the Turks as to earn from them the title of Kanli Kasteli, the 'Bloody Castle'. It is difficult to say how far the walling of roughly hewn limestone blocks, more or less horizontally arranged at certain points in the enceinte beneath the later constructions, may be of Minoan origin, but sherds found by me in the interior during an early visit to the spot[3] point at least to the existence here of some Minoan *phrourion* or guard-station. It seems probable, however, that most of the 'Cyclopean' remains here observed[4] should be taken in connexion with the early Greek pottery that also occurs, and much can be said in favour of the now generally accepted view that this was the site of the 'white-shining Lykastos' of the Homeric catalogue.[5]

From the direction in which the traces of the old road are seen heading at Kanli Kasteli it appears to have followed a more direct route to the head-waters of the Platyperama than the modern track which here

[1] For Kanli Kasteli see L. Mariani, *Antichità cretesi* (*Mon. Ant.*, vi), pp. 232, 233 and cf. A. Taramelli, *loc. cit.*, p. 342 seqq., and especially G. Gerola, *Mon. Veneti di Creta*, i, p. 186 seqq.

[2] The Romaic form of Rocca, Ῥόκα, still applied to the Castle height is the same as that used for a distaff (ῥόκα) and has given rise to a folk tale. The daughter of a king, on the peak of Juktas, flung her distaff across the valley to the height of Kanli Kasteli (ἐπέταξε τὴ ῥόκα). The name Róka also gave rise to the erroneous idea that here was the site of Rhaukos (certainly H. Myros).

[3] In 1898, A. Taramelli, *op. cit.*, p. 347, also speaks of finding 'Mycenaean' sherds in the crevices. On the occasion of a more recent visit (1923) Dr. Mackenzie and Mr. de Jong searched the upper surface in vain for Minoan pottery, though a M. M. III sherd occurred at the bottom of the Western steep. In the open spaces of the village itself I could find no Minoan pottery. All this tends to show that the Minoan settlement was very limited.

[4] During my visit in 1898 I noticed massive remains of primitive walling on the Northern steep.

[5] *Il.* ii, l. 647 ἀργινόεντα Λύκαστον. It had been destroyed by the Knossians before Strabo's time (l. i, c. iv, 14). The wresting of its site by Gortyna from Knossos and its handing over to Rhaukos (H. Myros), distant only a few miles over the watershed to the West, squares well with this attribution. On the hill-side about three miles N.E. of Kanli Kasteli is a 'Geometrical' Greek Cemetery.

diverges to the West. At Pyrgos, a commanding position beyond which the upper gorge of the stream begins, the modern path again follows some very clear traces of the Minoan Way, and near this point, above an abundant spring, are remains of early constructions and tombs containing clay *larnakes* or sepulchral chests. One of these, of which we were shown the fragments, was of the bath-shaped type, with rope ornament of the L. M. I *a* class.[1]

Pyrgos: Minoan *larnax* and relics.

FIG. 34. LIMESTONE POT, GOLD RING, AND BEADS FROM L. M. I *a* 'LARNAX', PYRGOS.

Among its contents was a miniature vase of banded limestone (Fig. 34, A), only five centimetres in its original height, which, though its rim is broken, shows the rudimentary ledge-handle and general contour of a dark grey steatite vase from Mochlos,[2] already figured in Volume I of this work as an obvious derivative of a pre-dynastic Egyptian class.[3] The associations of the Mochlos vase were overwhelmingly E. M. II, and it seems possible that the specimen contained in the *larnax* may have been an heirloom. With it were a broken gold ring (B) and a variety of beads, of which the forms are shown in Fig. 34. The globular amethyst type (G), and probably the similar cornelian bead (I), are characteristic of Egyptian deposits of the Middle Empire, but survive into the early part of the New Kingdom. These, and the cornelian examples, K, L, M, which have the same oversea associations, should almost certainly be set down as Egyptian imports. The fluted gold beads, on the other hand (C, E), must be regarded as of Minoan fabric, and show an approach to those of the lapis lazuli necklace found in the Royal Tomb at Isopata, near Knossos.[4] The three-sided bead of pale

Illustrating Egyptian relations

[1] The *larnax* had three upright handles on the sides.

[2] Seager, *Mochlos*, pp. 24, 25, also Pl. II.

[3] *P. of M.*, i, p. 91, Fig. 59, and p. 92.

[4] *Prehistoric Tombs of Knossos* (*Archaeologia*, lix, 1906), p. 152, Fig. 130.

blue faïence, F, is of special interest as attesting the survival of the elongated prism type of earlier seal-stones. The gold ring has lost its setting, but shows the way in which the hoop was attached. It is of the usual Late Minoan type, here, like the other jewels, dated to L. M. I *a*.

Nothing could better illustrate the old connexions between Crete and the Nile Valley than this little hoard of objects found beside the ancient transit route. We see Egyptian trinkets of the early New Kingdom actually on their way, and find at the same time a reminiscence of a much more remote connexion with Egypt before the dynasties. Pyrgos itself, on a headland commanding the entrance of a defile, which takes its name apparently from some Byzantine fort, may well have been the station of a Minoan *phrourion*. Farther on, where the winding path ascends the upper gorge of the stream amidst still surviving remnants of ilex forest, it makes its way for the most part between terrace walls of the old road, the remains of which, as it approaches H. Thomas, show five or six roughly horizontal courses of large blocks[1] (Fig. 35). The 'village-town' of H. Thomas—one of the most finely situated in the island—is perched on the edge of a declivity about 1,800 feet above sea-level, with fine outlooks towards the ridge of Juktas and, in paler outline, the mountains of Lasithi. It contains a bit of late Greek masonry, and is surrounded by the fine rock-cut façades of tombs of the same period, while in a rocky glen on its S.E. border a recess hewn in the cliff bears a dedication to Dêmêtêr and Korê. But superficial traces of Minoan occupation are here wanting, though about half an hour farther to the S.E., beyond the village of Megálo Vrysi, distinct traces of the Minoan Way come again into view on the gentle swell of the tableland leading to the upper part of the long village of H. Varvara.

Minoan road approaching H. Thomas.

Here the old route meets the modern high road across the Island that runs from Candia, by a wholly different route, up the Xeropotamos Valley, and thence past Hagious Deka—the site of Gortyna. At H. Varvara a modern mule-track branches off to the West, passing through a series of villages, and following the only practicable passage round the Southern shoulder of Ida to the districts beyond. The first village on this side, reached by a steep descent from the edge of the watershed, bears the typically pre-Hellenic name of Panasòs, and here, by the old track leading out of the village to the West, I had noticed during an early visit two Minoan column-bases built into a wall, now destroyed. Above this village, on the opposite side of the glen to

Road remains, &c., near Panasòs.

[1] One measured by me was 1.30 m. long by 0.75 m. high: another 95 cm. by 65 cm. in height.

that taken by the descending course of the modern road, later investigations led to the discovery of the winding course of the old 'South-Western Way', with remains of the outer and inner terrace-walls containing some large blocks, and presenting at one point the double lines of a well-preserved

FIG. 35. TERRACE WALL OF MINOAN WAY NEAR H. THOMAS, STEPPING UP SLOPE.

obtuse angle. Just below this, by a ruined stone tank known as Lutrà,[1] quantities of clay cups of the usual votive kind had come to light, and the ground was strewn with Minoan sherds, of the L. M. I *a* Period. Here, perhaps, was a sacredspring.

On the height, however, bordering the glen of Panasòs on the East, it was possible to register more important remains. The continuation of the main line of roadway to the South, with which we are specially concerned

Central guard-station of S. road at Anagỳri.

[1] *'στὰ Λουτρά.*

—bringing Knossos eventually into connexion with the Mesarà district of which Phaestos is the centre—became once more traceable, following the upper slope of a promontory that forms the watershed on that side. Here, immediately above the ancient track, still used as a mule-path, was visible a line of rough-hewn blocks of grey limestone, which proved to belong to the outer walling of a strongly built Minoan guard-station or *phrourion*. This was of elongated rectangular form, with a series of cross-walls and chambers visible in places, extending over a hundred metres along the crest of the hill and was associated with a good deal of pottery showing that the building goes back at least to the beginning of the Middle Minoan Age, though, as usual on this route, the L. M. I *a* sherds predominated superficially.

From this point, on the S.E. fringe of the broad mountain saddle over which the Minoan Way passed, a magnificent panorama opens. The view here, indeed, sweeps the whole flank of Mount Ida and its foot-hills almost from sea to sea, while glimpses begin to appear of the Asterusian range that forms the Southern border of the Mesarà Plain. What we see here, indeed, at this commanding point—which rises 1,800 feet above sea-level, and is almost exactly midway between the two seas—appears to have been the central watch- and guard-station of the transit route. Another such *phrourion* has already been described guarding the mountain-neck, whence the branch line ascends to the walled enclosure of Juktas.[1] It is possible, moreover, as has been suggested, that the important structure known as Seraïa,[2] dominating the point where the traditional route from Pedeada ascended the steep, combined some such function of observation or even defence. Farther East, in what seems to have been the continuation of the same route through the Lasithi district to Siteia, I was able, thirty years since, in company with Professor Myres, to trace the repeated occurrence of such guard- or watch-stations at intervals along the course of a Minoan built way, similar in all respects to that which traverses the central sector of the Island.[3] In view of these consistent phenomena it seems impossible

Systematic defence of road communications.

Strategic control.

[1] See above, p. 66.

[2] See above, p. 63.

[3] *A Mycenaean Military Road in Crete* (*Academy*, June 1, 1895, pp. 467, 470). In particular, about twenty minutes from the top of the pass that leads down from the farther side of Lasithi, we came upon 'a very extensive early fortification designed to protect the defile against an enemy coming from below, and forming in this case a breastwork some two hundred yards long with a passage for the road. Two walls ran parallel to and near the ancient road, flanking it on either side; and from the lower of these, above and below, two other walls branched off at right angles—one climbing down towards the bottom of the ravine, the other ascending the rocky slope above. A breastwork was thus formed, some

not to admit the conclusion that the great Minoan road-system that radiated from Knossos over the whole of the Central and Eastern districts of the Island was also planned with regard to a certain strategic control by the Minoan Priest-Kings.

It is true that, considering the generally open character of the towns in the great days of the Minoan civilization, it may be well not to lay undue stress on the military side of such arrangements. But the *pax Minoica*, that embraced the civic centres and their immediate surroundings, may not always have extended in an equal degree to the remote mountain fastnesses. The eventuality, moreover, of some descent on the Island from without could not, perhaps, be left altogether out of account, and the consequent desirability of being able to block the main transit lines in cases of emergency. It was the possibility, indeed, of such an attack on the part of the Saracens that led Nikêphoros Phokas to rear his great castle on the twin peaks of Kanli Kasteli. As a mere measure of internal police such watch-stations too had their value. Brigandage, if it existed, could be checked, commerce protected, and the official postal communications which doubtless existed, were also secured.

Traces of old road at Kalathianà: beehive ossuary.

This whole locality goes by the general name of Anagỳri[1] or 'the Windings', since from this point the modern track-way—as did certainly the ancient Way—begins the descent of the Southern slopes of the watershed. The mountain-side here is broken by continually shifting torrent-beds, and it is only in the defile beyond the hamlet of Apomarmàs that the double walling of the old road reappears. It is overlooked here on the terrace level of the upper village of Kalathianà by the remains of a primitive settlement and of one of the largest and best constructed of the early beehive ossuaries.[2] Its contents were also the richest, notwithstanding the abstraction of many gold objects that had been brought to light by an earthquake that took place in 1856. The *tholos* is strongly and carefully built, the walls preserved to a height of two and a half metres, consisting alternately of regular and irregular work, with white clay mortar inserted in

two hundred yards long, and the upper part of this again made a return for another sixty or seventy yards. . . . The walls were about four feet thick of undressed polygonal blocks, and it must once have been a stupendous work. About fifteen minutes below this was another defensive work of Cyclopean construction on a rocky knoll known as "the Kitten's Cistern" (*'στοῦ κατσοῦλι τὴ 'στέρνα*).' Without the evidence of associated pottery, however, it is not always easy to distinguish rude Minoan structures of this kind from the Early Greek.

[1] *'στοὺς ἀναγύρους.*

[2] Xanthudides, *Vaulted Tombs of Mesarà*, p. 81 seqq. and Pl. XLIV. There is also traceable part of a second *tholos* near the cliff, not described by Dr. Xanthudides.

the interstices.[1] The base of the wall, as usual, is formed of larger blocks, and at one spot that it was possible to clear showed an internal arrangement of 'headers' (Fig. 36).[2] Its thickness here is 2·70 metres. Triangular dagger-forms found here go back at least to E. M. II. An ivory image of the proto-Egyptian or Libyan class was found within, as well as the seal illustrated above, in the form of a lion guarding the body of a man in the contracted attitude of the dead.[3]

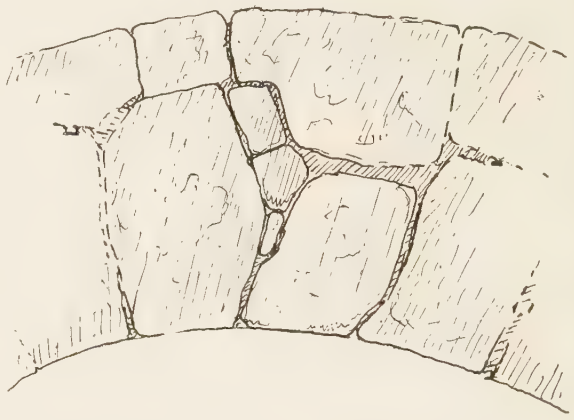


Fig. 36. Section of Wall of *Tholos* Kalathianà, near Base, showing 'Headers'.

Remains of another similar beehive ossuary occur at Marathokephali,[4] near the neighbouring village of Moroni, and the penetration of these primitive monuments of the Mesarà into the hill-country near the line of the old transit-route is highly significant.

Minoan station at Ruphàs.

At Ruphàs, where the hills begin to open out, the Western slope is strewn with Minoan sherds, going down from E. M. I to the Late Minoan Age, and indicating the existence of an important station.[5] Beyond Ruphàs the old built Way is again clearly perceptible, turning to the right along the modern track to Mires. It presently breaks away from this, however, and seems to have crossed an intervening hill at a higher level, thus reaching the plain between Mires and Kaparianà. The plain of Mesarà once reached all traces cease. The palatial structures at Phaestos and Hagia Triada, as well as the remains of primitive ossuaries at the latter place, at H. Onuphrios, and at Siva, a little South of Phaestos, may in themselves be taken as a sufficient indication that the main through route here took a more or less Westerly direction, and a conclusive proof of this was afforded by the

Traces cease on borders of Mesarà.

[1] The clay was undoubtedly employed for this purpose, not, as stated, *op. cit.*, p. 81, for plastering the inside.

[2] From a sketch made by Mr. Piet de Jong at the time of my visit in 1924. The interior diameter of the chamber was 9·40 metres (*c.* 30 feet), pointing to the same original height, but the Eastern half, with the entrance, had been destroyed.

[3] P. 55, Fig. 26.

[4] Xanthudides, *op. cit.*, p. 2.

[5] A threshing-floor (ἁλώνιον) here is ringed round with gypsum slabs with bevelled edges that seem to have belonged to a good Minoan building. Gypsum crops up on a headland above.

discovery, beyond, of the Minoan port of Komò and of the actual abutment of the ancient way.

Early *tholoi* guide to ancient route to S.W.

At the same time the position of other beehive ossuaries and the settlements with which they were connected, beginning at Platanos, on the Mesarà Plain, and forming an important group on the South-East, that extends up a narrowing gorge of the Asterusian range (see Map opp. p. 71), suggested the existence of some very early line of communication with the Libyan Sea in that direction. These primitive monuments, among which those of Kumasa described above[1] are specially prominent, are distributed in a wedge-shaped manner up the glen, culminating on the ridge itself by the ruined pilgrimage Church[2] of Avthentis Christos — Christ, the Lord—who here, as on Juktas and on Diktê, has inherited the worship once paid to the mortal 'Zeus' of Crete.[3]

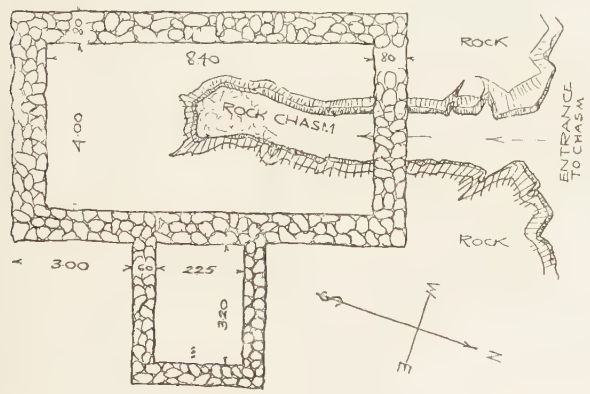


Fig. 37. Primitive Sanctuary over Chasm in Peak, Christos.

Primitive remains at Christos.

Curious evidence of the ancient sanctity of the spot is visible on the summit of the rocky knoll above the church, where the primitive settlements chiefly lay. Here, in the rock face of the cliff side, is a cleft about a metre and a half wide, above which an oblong building with a square projection East has been constructed of rough blocks. (See Plan, Fig. 37.)[4] The yawning chasm within is choked below with fallen stones, and may have descended much deeper, or have even formed the entrance to a cave. In any case, what we have to deal with was clearly a shrine of the divinity of the peak.[5]

The *tholos* ossuary[6] connected with this primitive station is situated

[1] See p. 36 seqq.

[2] The remains of the original church seem to be on a headland higher up. By the *tholos* are the ruins of a small church of Venetian date.

[3] *P. of M.*, i, p. 154.

[4] Planned by Mr. Piet de Jong, to whom the sketch, Fig. 38, of the interior of the *tholos* is also due.

[5] Near this was a curious structure of irregular 'but and ben' type, and lower down the slope a small square building (2·90 m. × 3·50 m.) with good blocks on either side of the doorway and without lintel (1 m. × 0·50 m.).

[6] See Xanthudides, *Vaulted Tombs of Mesarà*, pp. 70, 71 (transl. Droop). The inner diameter of the *tholos* was from 6 to 6·50 metres. Most of the building material had been here preserved, as at Platanos. The contents of the ossuary were poor and the probable date E. M. III–M. M. I.

below the upper knoll by the Venetian Church. The interior view (Fig. 38) shows the massive inner lintel [1] with its characteristic 'humped' outline, about 90 cm. thick in the middle.[2] The upright supporting block on the right of the doorway is missing,[3] and the large block visible a little beyond on the ground level to the right is a piece of natural rock worked into the construction.

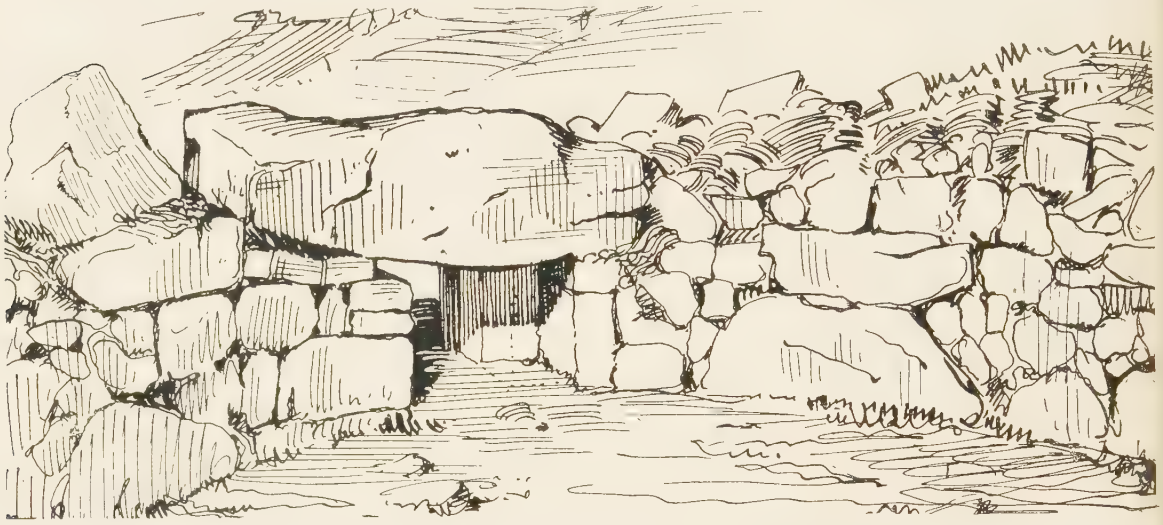


Fig. 38. Primitive *Tholos* Ossuary, Christos. Inner View showing Massive Lintel.

Descent to Libyan Sea.

The summit of the ridge looks East, across a chasm descending some 1,600 feet sheer, beyond which rises the central mass of the Asterusian range, known from its flat head as Kophino, or the 'Coffer' Mountain. From the deserted site of Christos on the watershed nothing more than goat-paths lead down seaward, and it was by a scrambling descent of about 2,000 feet down grit-strewn steeps, baked hard by the sun, and sheerer rocks, that our party at last reached a dry torrent-bed below. This formed a passage, in places no more than four paces wide, through a cleft between limestone walls, rising several hundred feet on either side and stained with black and deep orange patches, only dimly visible in the half-light. Then, suddenly, this dark mountain portal opened, in the blaze of the midday sun, on a sandy cove, with an inviting vista of blue sea between two rocky headlands (see Sketch-Plan, Fig. 39). That on the right, known as Trypetì, affording good shelter

[1] There was a second lintel block on the outside now wanting. Xanthudides, *loc. cit.*, erroneously speaks of the inner lintel as being 'the full thickness of the wall'. There were traces of an antechamber outside the entrance.

[2] See, too, above, p. 43.

[3] Indicated by dots in Fig. 38.

against the *Gharbìs* or West wind, was, as its name implies, tunnelled through by a cave, approached by an artificial ledge along the face of the cliff. In this corner of the cove early foundations were visible cropping up in the beach itself, while, at the bottom of the slope, ran terrace-walling, going back to Minoan times, with some Greek and Roman work superposed.[1] But the sherds scattered about on the slope above were almost exclusively Minoan, including some black-glazed M. M. II ware and, as usual, remains of great oil-jars of L. M. I date, one fragment with a raised band showing good 'herring-bone' decoration. Here, above a spring that rises on the steep, I found a corner of a clay sarcophagus or *larnax* presenting incised characters of the Linear Class A (Fig. 40).[2]

Small Minoan port of Trypetì.

Fragment of inscribed *larnax*.

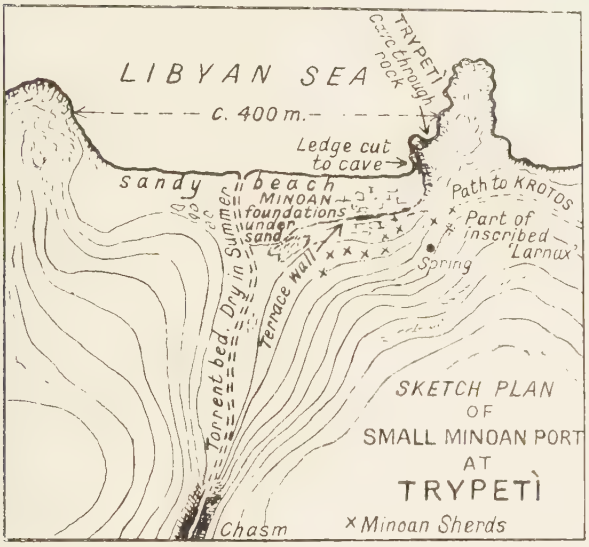


FIG. 39. MINOAN PORT AT TRYPETÌ.

The secret of the track that must once have led across the range from this little Minoan haven to the Mesarà plain remains to be discovered.[3] In any case, this was only a side outlet of the interior road-system. Somewhat farther West lay what was in later times a more

[1] There were also remains of a Roman cistern.

[2] The first character is complete and clearly answers to No. 2 of the Table, *P. of M.*, i, p. 642, the internal stroke, however, being abnormally low down. After this is a stroke of division, showing that this was the end of a sign-group. Of the two characters that follow the first can be almost certainly restored as No. 74 of the Table. The traces of the third sign are too slight for restoration.

[3] A path visible on the neck of land to the West of the cove leads to the mountain village of Krotos, which stands in the nearest communication with this site, and was the probable route of access. On the other hand, a scrambling track up the torrent-bed on the East side mounts to a terrace level (¾ hour distant), where there is a ruined church dedicated to St. Sava (a rare titular in Crete), and near it remains of a Venetian cistern. Here are scattered olive trees and a fair path leads to the *col* (1 hr. 40 min. from Trypetì) where is a copious spring and a church of H. Paraskevì. This path looks Westward over the great chasm already described. From beyond H. Paraskevì paths diverge to Kumasa and Vasilikì (40 min.).

important crossing-point leading from Gortyna, now Hagious Deka, to its port at Lebena. But Gortyna, though under the Roman Empire far and away the most important civic centre of the island and the seat of the Governors of the joint Province of Crete and Cyrene, was of comparatively slight consequence in Minoan times so far as can be gleaned from its very extensive excavations.[1] A Roman road, which also served the neighbouring quarries of Dichalì that supplied Gortyna with grey and white marble, is traceable at the village of H. Kyrillos. It passes the watershed beyond (*c.* 1,800 feet) on its way, by a winding descent, to the now deserted site of Lebena.

Lebena.

Lebena,[2] dominated by a rocky headland, well-named from its lion-like form, Cape Leôn.

But this little port, with its medicinal spring and Asklepios shrine, of which the Libyan connexions have been already noted,[3] offered no superficial evidence of Minoan occupation. From Lenda (*Λέοντα*), as the spot is now named, it is an hour and a half's sail in a kaìk, with a favourable wind, to the 'Fair Havens' of the Acts of the Apostles, still *Καλοὶ Λιμνιῶνες*. Shelter from most points of the compass is here given[4] both by 'St. Paul's Island' in the offing and by the high coast-line which runs out hence towards Cape Lithinos, the Southernmost point of the Island. At all times this latter barrier must have offered an effectual screen against the *Borràs*, the classical Boreas—the fierce Nor'-Nor'-Easter of Crete—which is the wind that must undoubtedly be identified with the Euroclydon of the Acts,[5]

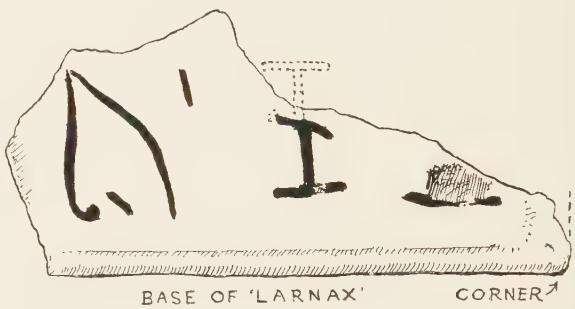


Fig. 40. Inscribed Fragment of Larnax, Trypetì.

Fair Havens.

Borràs: 'Euroclydon.'

[1] See on this especially Dr. Biagio Pace, *Tracce dell' epoca preistorica in Gortina* (*Ann. della R. Scuola Italiana a Atene*, vol. i, 1914, pp. 372, 373). In addition to some Neolithic objects, only a few stone vases of the later class and some L. M. III fragments have come to light.

[2] There are now here only two fishermen's huts.

[3] See above, p. 39 and note.

[4] See Captain Spratt's *Travels and Researches in Crete*, ii, p. 20, and his very illustrative frontispiece.

[5] xxvii. 13, 14: 'the south wind blew softly . . . but not long after there arose against it a tempestuous (*τυφωνικός*) wind called Euroclydon'. Euroclydon (otherwise *Εὐροακύλων* or *Euroaquilo*) is the Levantine Gregalía (Renan, *St. Paul*, 551 and n. 1), a name, however, apparently unknown in Crete. Captain Spratt, *op. cit.*, ii, pp. 14, 15, whose ship was assailed by a similar hurricane in the Bay of Mesarà (also in the late season of the year), blowing from the North, tries, though in a

like it, rising suddenly when a South wind has died down. Swooping down from the heights of Ida in tempestuous gusts it strikes the surface of the sea with such violence that the spray is swept before it like dust, to be caught up again in whirling columns.

On the flats and low slope that here immediately surround the haven on the land side, no Minoan relics rewarded our systematic search. But the sailors of the Apostle's vessel must have found ample entertainment ashore, since the soil in many places was strewn with the remains of Roman amphoras, which, coupled with the foundations of houses, show that enterprising inhabitants of the neighbouring town of Lasea had set up wine-bars by the harbour. Now all has changed. Except for an empty coast-guard house where fishermen occasionally squat, the whole site is as derelict as the once flourishing watering-place of Lebena, as Lasea itself as the former dockyard of Matala beyond, together with the intervening country—so much so, indeed, that, from the small hamlet of St. Cyril to the village of Pitsidia, our party journeyed twelve hours in all without passing a single village!

Deserted coast-lands.

A marked feature, indeed, of the Island has been the shrinking of human habitation from the neighbourhood of the sea, due to the fear of corsairs in medieval times and later, so that the classical proverb, *Κρὴς ἀγνοεῖ τὴν θάλασσαν*,—itself pointing to the beginning of such conditions—still largely holds.

The shelter afforded by the Fair Havens against Northerly and Westerly gales must, however, in all ages have been so obvious to mariners who had to round Cape Lithinos that it is impossible not to believe that this harbour was made use of in the great days of Minoan sea dominion. The position of the harbours and roadsteads of this Southernmost angle of Crete is such that shipping always had need of alternative places of refuge to East and West of it. Certainly, in a strong Easterly gale the Fair Havens

hesitating manner, to identify it with the 'Meltem', the N. and N.W. wind of Crete during the summer months. Trevor Battye (*Camping in Crete*, 1913, p. 87 and note), who experienced similar Northerly gusts, shared Spratt's misapprehension. But this Etesian wind, though often strong, has in the main a steady continuous course. No Cretan, it is safe to say, would have accepted the identification. The epithet 'typhonic', on the other hand, entirely answers to the *Borràs* in Crete as it does to the kindred Bora that sweeps down on the Adriatic from the Dinaric heights. In the Bay of Mesarà this North-East wind would be somewhat deflected by the range of Ida so as to appear to come from a more Northerly quarter. The two storm winds of Crete were well known to Sophocles, as is shown by *Trachiniae*, v. 114 seqq.:

πολλὰ γὰρ ὥστ' ἀκάμαντος, ἢ Νότου ἢ
Βορέα τις
κύματ' ἐν εὐρεῖ πόντῳ βάντ' ἐπιόντα τ' ἴδῃ,
. . . . . .
. . . . . ὥσπερ πέλαγος Κρήσιον.

lie largely open, though even in that case small vessels are able to anchor under the immediate lee of the little island.

Experience of South-Easter.

In this connexion, indeed, I had myself a somewhat startling illustration of the uncertainty and fury of the elements on this coast. I had pitched my tent on the sandy beach in full view of 'St. Paul's Island', and within a few yards of the tideless waters, then still as a mill-pond. Suddenly, however, about sundown, there arose a truly 'typhonic' South-East wind,[1] which brought up a heavy sea, and, in the small hours of the morning, when, fairly roused at last by the thuds and buffetings, I unfastened the door of my tent, a great wave burst in, swamping everything within. For one who suffers from complete night-blindness, it was an awkward quandary, but happily some sailors engaged in salvaging their half-sunk boat helped me out. Next morning the breakers rolled over the spot where the tent had been pitched!

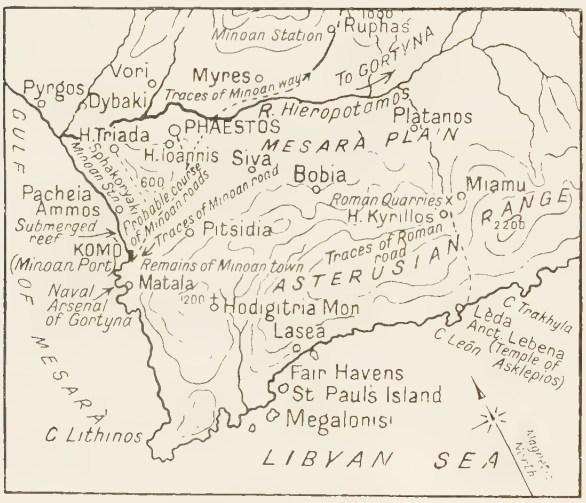


FIG. 41. THE SOUTHERN FORELAND OF CRETE.

It was, according to the *Odyssey*, a South wind—*Νότος*, implying perhaps a touch of West—that dashed the ships of Menelaos against the sea-worn cliffs beyond. The *λισσὴ πέτρη* has been generally held to represent at least in some general way Cape Lithinos, the extreme Southern angle of the island, a little South-West of Fair Havens. This is the Cretan Matapan or Spartivento, the central and most outstanding feature of the whole coast of the island that is washed by the Libyan Sea. (See Map, Fig. 41.) The situation which the poet of the *Odyssey* had in view is mentioned with extraordinary geographical precision as on the extreme border of the Gortynian territory,[2] 'where the South-West wind drives

Cape Lithinos.

[1] The Cretan *σκιρόκος λεβάντις* (from the Venetian *Sirocco levante*), a South wind with a touch of East.

[2] *Od.* iii. v. 293 seqq. :

ἔστι δέ τις λισσὴ αἰπεῖά τε εἰς ἅλα πέτρη,
ἐσχατιῇ Γόρτυνος, ἐν ἠεροειδέϊ πόντῳ·
ἔνθα Νότος μέγα κῦμα ποτὶ σκαιὸν ῥίον ὠθεῖ,
ἐς Φαιστόν, μικρὸς δὲ λίθος μέγα κῦμ' ἀποέργει.

Eustathius (I. iii, p. 1048, ed. Rom.) already remarked on this passage: *τοπογραφικὰ δὲ*

a great wave against the left headland towards Phaestos and a little rock keeps back the mighty water'.[1] But this description involves conditions that do not answer to Cape Lithinos itself. They lead us, indeed, somewhat to the North of it.

Matala harbour: considerable submergence.

The shelter found apparently by five ships of Menelaos' fleet would have lain on the left or Western side of the Cape. The little land-locked harbour of Matala, later the arsenal of Gortyna, that lies in this direction could hardly have been entered in a storm. It must, indeed, in all ages have served as a port, and the absence here of superficial traces of Minoan occupation may itself be explained by some observations made regarding the late Greek and Roman tombs that honeycomb the cliffs around. The rock floors of the lower tier of these lay under water and proved by soundings made to be as much as 1·80 metres—or nearly 6 feet—below the sea-level. Since, when made, they must have been at a reasonable estimate three metres or so above the sea margin, this phenomenon points to a submergence since our era of some five metres. The Northern coast of central Crete presents the same evidence of submergence,[2] while on the other hand it is well known that the Roman harbour of Phalasarna, in the extreme West of the island, has been left high and dry.[3]

ΛΙΣΣΗ ΠΕΤΡΗ.

As already noted, Matala itself lay within the traditional borders of the Gortynian territory, but, about a mile to the North, there juts out, beyond a dry torrent-bed, a headland of white rock, which is the natural boundary between it and that of Phaestos and may indeed be the actual point that the poet had in view in his λισσὴ πέτρη.[4] This headland at the same

ταῦτα πρὸς ἱστορίαν ἀληθῆ. Cf. Hoeck, *Kreta*, i, p. 411.

[1] Butcher and Lang's translation, p. 40.

[2] At Chersonesos the lower part of walls of Roman houses are to be seen below the sea-level. At Niru Khani, East of Candia, where there was a Minoan port, I observed a section of a submerged quarry, and column bases (Suppl. Pl. XIV, *c*), while submarine remains are visible on the coast-line of the Minoan harbour town of Knossos and at Mallia (see p. 232 seqq.).

[3] See especially Spratt, *Travels and Researches in Crete*, ii, pp. 232 and 241 seqq. At Phalasarna Spratt estimated the upheaval at 16 feet (*c.* 5 metres); between Selino and Lissos the maximum is as much as 26 ft. (8 metres), at Lissos itself and Sura, the port of Elyros, also high and dry, 22 ft. The old sea-level is well marked by lines on the cliffs and headlands.

[4] I notice that this suggestion was also made by Dr. A. Taramelli, *Ricerche archeologiche cretesi* (*Mon. Ant.*, ix, 1899, p. 296): 'Λισσὴ πέτρη . . . che io ritengo fosse un luogo di approdo situato sul golfo di Metalla o di Messarà più a Sud di Dibachi in un luogo dove le colline del gruppo di Phaestos giungono al mare, formando una biancheggiante scogliera, contro cui si infrangono le onde del largo.' What value is to be attached to the mention of Λίσσης or Λίσσην by Strabo (x. 4. 14: and cp. Hesych., *s. v.*) in the territory of Phaestos is not so clear. It is in any case legitimate to allow

time offers the first real shelter available for small craft escaping, like those of Menelaos, the sea-beaten rocks of Cape Lithinos itself in a Southerly gale. Lying as it does on the natural boundary line of the old Phaestian territory, it marks the point where the coast-line recedes a little to the East, forming an angle well protected from the South, at a spot known by the general name of Komò. In the bay that here opens—significantly guarded seawards by the little island of Paximadi—shaped like a couchant Sphinx—our explorations were crowned by the discovery of an important Minoan port. (See Sketch-Map, Fig. 42.)

First shelter from NOTOΣ: Bay of Komò.

The coast here faces West, and in addition to the sheltering promontory running out on the South side, there is visible about 700 metres to the North, a half-submerged reef, the prolongation of a bluff above, which previous to the subsidence noted in the neighbouring harbour of Matala, may well have formed a natural breakwater on that side. Whatever part of the old harbour, however, was here submerged, the evidences of Minoan occupation on the land side were everywhere manifest. The whole area bordering the shore for a width of about half a mile may be said, indeed, to be strewn with Minoan remains. A higher and lower acropolis is visible, separated by a broad belt of grey drifted sand, covering the centre of the old town. The original citadel seems to have been the loftier headland to the South, where there are many house foundations and sherds going back for the most part from the Middle to the beginning of the Early Minoan Age. Near its summit also appear what seem to be the remains of an early square ossuary chamber, and by it, seemingly, a segment of a tomb of the primitive beehive type. Evidently, however, by the beginning of the Late Minoan Age the town centre had descended to the lower bluff, and the numerous fragments of great oil-jars of that epoch, exactly resembling some from the Palace Magazines of Knossos, that were scattered about showed that it was then an important staple of the chief commodity with which Crete seems to have supplied ancient Egypt. At one spot, indeed, a native proprietor had unearthed remains of a building with rows of such *pithoi* still in position. He had appropriately named it the 'Custom House' (τελωνεῖον), and it is by no means improbable that export duties were here levied by the officers of the Minoan Priest-Kings. (See Sketch-Plan, Fig. 42.)

Minoan port here and extensive settlement.

Higher and lower Acropolis.

The 'Custom House'.

All the evidence, indeed, combines to prove that Komò, or by whatever

a certain poetic latitude, which might include both Cape Lithinos and this headland beyond Matala, somewhat more to the North. One thinks of the elusive 'elm-tree' of Matthew Arnold's *Thyrsis*, the position of which, as described, is made to embrace more than one view-point.

name it then passed, was a commercial port, bringing Crete into direct relation with the Nile Valley, from the earliest days of Minoan civilization. But what makes this conclusion of the greatest interest is the appearance of distinct remains of the Minoan transit road itself, with its characteristic double wall lines, abutting on the earlier acropolis height. It is, moreover, a suggestive phenomenon that, together with an abundance of Early and Middle Minoan sherds, there were found here some fragments of 'Geometrical'

Abutment of Minoan roadway on earlier Acropolis.

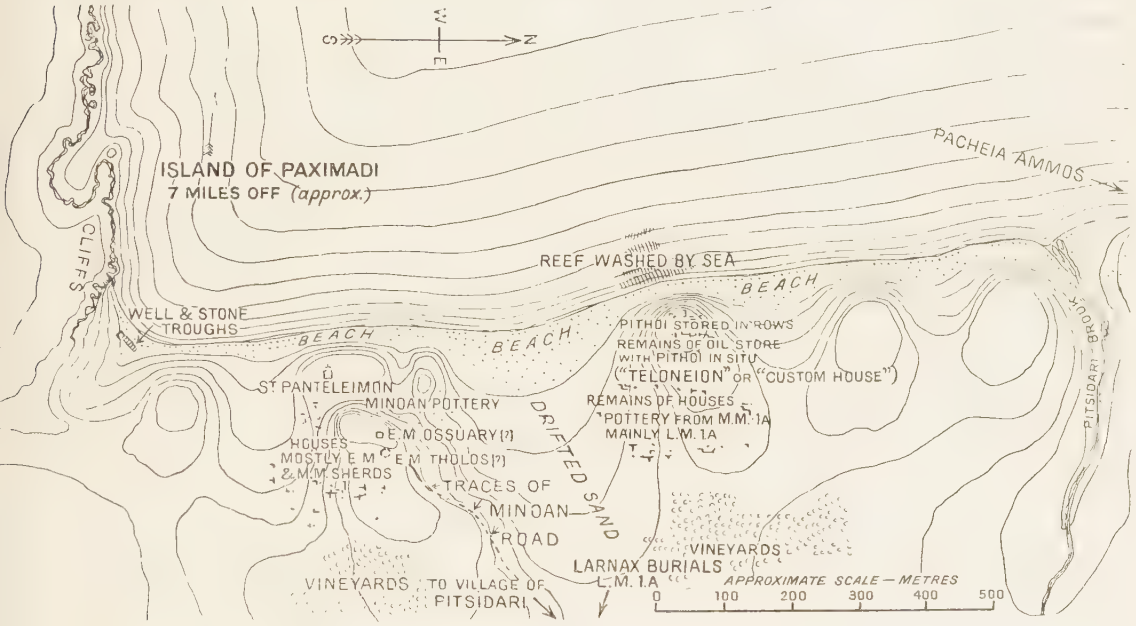


FIG. 42. SKETCH-MAP OF KOMÒ.

vases, pointing to a reoccupation of this higher citadel in early Greek times. The story of Menelaos fits in well with the idea that the harbour of Komò may once more have played a part as the starting-point of direct voyages between Crete and Egypt. The course still taken by sponge-fishing craft or other small vessels after leaving the Cretan coast runs more or less due South almost to within hail of the North African shore, which at Derna is only 180 miles from this point, thence following that coast-line East to the mouth of the Nile. The pendant to the adventure of Menelaos off the λισσὴ πέτρη, is the traditional 'Harbour of Menelaos', which Herodotus[1] places immediately East of the island of Plataea, the original stepping-off place of the Greeks on the Libyan shore. This has been

Menelaos' starting-point for Egypt.

[1] iv. 169. See above, p. 37, n. 2.

identified above with 'Seal Island' the primitive *tholoi* of which show such a remarkable resemblance to those of Mesarà.[1] Was there perhaps some variant saga which took this for the strand where Menelaos and his comrades made their wily ambush among the herds of Proteus?[2]

On the West side of the roadstead of Komò there is no protection, and with a strong *Gharbìs* blowing, a heavy sea rolls in, but the small craft of early days may have been drawn up either on the sandy beach, or towed up the mouth of the Pitsidari stream, beyond the Northern bluff, which, there is every reason to suppose, brought down more water in Minoan times. The same conditions are repeated on the coast near Dibaki, farther North up the Mesarà Gulf, where fishing-vessels have the advantage of the more important inlet formed by the mouth of the Hieropotamos. There can, indeed, be little doubt that this part of the coast, which lies in still more immediate contact with Phaestos and Hagia Triada, also accommodated Minoan shipping. But, though some Minoan tombs and pottery were found at Dibaki itself,[3] careful researches carried out by myself and the other members of my party on the coast-line itself between Pyrgos and the mouth of the river failed to bring to light a single Minoan relic. Neither are there any outstanding natural features near the sea such as one would associate with an important Minoan settlement.

Komò also a maritime outlet of H. Triada and Phaestos.

Intermediate Minoan station.

The Minoan Palace and settlement at Hagia Triada itself, however, would have stood in very close relation to the newly discovered sea outlet. Beyond the bed of the Pitsidari stream that forms the Northern boundary of the Komò site, on a spur of the low range overlooking the deep sand-belt that here fringes the shore,[4] the explorations undertaken by me in 1923 had revealed the existence of a small Minoan station with sherds, going back at least to M. M. II. The spot is known as Sphakoryaki, and it lies beside the track-way from Pitsidia leading to Dibaki. It is distant, as the crow flies, only about two and a half miles from Hagia Triada, and no doubt represents a key position on the Minoan route from that site to Komò.

The inland course of the old roadway that once abutted on the acropolis of the Minoan port must have roughly followed the direction of the modern mule-path that leads from the flourishing village of Pitsidia

[1] See above, p. 38, Fig. 17.

[2] *Od.* iv. 398 seqq.

[3] Taramelli (*Mon. Ant.*, ix, p. 296) refers to vases resembling 'Kamares types' in the Candia Museum. They are said to have been found 'in alcune tombe tumultuariamente scavate a Dibachi'. One would like to have had more information as to these Middle Minoan 'tombs'.

[4] Known as Παχεῖα Ἄμμος, 'thick sand', a recurring local name in Crete.

to the borders of the Mesarà plain at H. Jannis, through an easy country. It is observable, moreover, that a branch track, leaving this route about half an hour before reaching H. Jannis, brings Pitsidia and the ancient haven beyond into still more direct connexion with the hill of Phaestos, which itself lies only four miles in a direct line from Komò.

It can hardly, therefore, be doubted that this sea outlet served the two great Minoan centres of the South. At the same time, we have good warrant for believing that the old road, after reaching the Western borders of Mesarà, in the neighbourhood of H. Jannis, followed much the same direction as the modern route to the point where its remains reappear among the foot-hills that shut in the plain to the North-West. On the whole it will not be thought too much to say that the result of these explorations has been to establish the existence of a built Minoan Way bringing Knossos and its harbour-town beyond it into direct connexion both with its sister foundations on the South side of the Island, and with the neighbouring port on the shore of the Libyan Sea itself. The existence of this Great South Road, with its branch routes, of which we have indications, East and West, and the guard-houses and protecting stations scientifically distributed along its course, can only be explained by the central authority which the lords of Knossos seem to have wielded in the great days of Minoan civilization. It gives us a better understanding of the means by which in the 'Age of Palaces' that civilization throughout a large Cretan region presents, even in detail, such a uniform character—so that, for instance, the same ceramic types with identical fashions in decorative style, and the methods successively in vogue of writing and numeration, reappear on the remotest sites and those most distant from one another.

Existence of Minoan transit road from Knossos established. Minoan road system key to uniformity of culture.

It follows, moreover, that the elaborate system of road-communication that we find already radiating from Mycenae in the period immediately succeeding the Minoan conquests on the Mainland of Greece[1] had had a long antecedent history on the Cretan side. The remains of the ancient built ways round Mycenae present much the same appearance as

Minoan road system extended to Mycenae.

[1] See especially Colonel Steffen's *Karte von Mykenai*; Erläuternder Text, p. 8 seqq.: *Die Hochstrassen von Mykenai*. In 1924 I had an opportunity of exploring the prehistoric roadways round Mycenae in company with Dr. Mackenzie. Our calculation of the actual breadth of the roadway by the *col* of the Agrilo Vounò, where it is specially well preserved, 3·70 m. (between the upper terrace wall and the outer margin of the lower terrace), very nearly corresponds to Steffen's 3·58 m. Taking in the width of the inner terrace wall (*c.* 80 cm.) the total width of the roadway here would be 4·30 metres. The total width, thus calculated, of a piece of road opposite the Lions' Gate was only 3·60 m.

those already described in the case of the great transit route of Central Crete and others of the Eastern part of the island. The terrace lines along the limestone steeps, the carefully calculated gradients, the low mound or causeway, about four metres in width, with its supporting blocks, where the track passes over more level country, are all familiar features. The stone culverts that recur at intervals in the case of the Mycenae roads are seen to reach their highest point of development in the massive viaduct of Knossos.

Roman comparisons.

The traces left on the Cretan country-side of these much more ancient built ways often curiously recalled to me earlier experiences made in tracking out Roman roads in the Balkan Peninsula, which there once formed the links of Empire. Nor is it less true that an imperial spirit also breathes in these centrally planned road-lines that in Minoan Crete bound sea to sea, and brought the East and West of the Island into direct communication, or in those which, on the Mainland side, enabled Mycenae to dominate the Corinthian as well as the Argolic Gulf. But most imperial certainly was the aspect of the truly Roman piers, to be described in the succeeding Section, by which the trunk-line of the built Way approached Knossos itself.

Fig. 43. Supporting Wall of Road by Bridge-Head, Mycenae.
(From Photograph by A. E., March, 1924.)

§ 36. The Minoan Viaduct South of the Palace.

Traces of Southern Road of approach at Knossos; Remains brought to light beneath petrified surface; Quarrying by means of 'Wager' system; Massive piers unearthed of Minoan Viaduct; Stepped intervals between piers for passage of water; Corbelled arches probably above intervals; Restored elevation; West Pier abutting on altered course of Viaduct towards bridge over torrent—Leading to Stepped Portico and road beyond; Character of Masonry; Conjectural breadth of Roadway; Trunk line of Transit Route; Traces of Continuation of Road S.E. of Viaduct, beneath Vlychià terrace; Middle Minoan Houses used as road foundations; L. M. I–II pottery associated with upper part of Viaduct; Presumption that original elements date from foundation of Palace.

Traces of S. road of approach at Knossos.

The appearance of traces of what subsequently proved to have been a monumental portico, stepping up the Southern slope to the Palace, led to the search for a Minoan road of approach on the opposite side of the ravine. A small excavation was accordingly made here above the farther bank of the Vlychià torrent-bed, in a line approximately corresponding with that to which the lower course of this great entrance avenue pointed, the result of which was to bring to light the remains of the base blocks—a good deal tumbled about in places—of what seemed to be the abutment of a Minoan paved way.

Remains beneath petrified surface.

These blocks had been thought themselves to rest on the natural rock surface, but the exceptionally heavy winter rains of 1923–4 brought out certain features which suggested the advisability of further probing. The results of this were truly dramatic. The whole surface of the ground bordering this paved area proved not to be rock at all, but an accumulation of earth, indurated, as it afterwards appeared, by water strongly impregnated with gypsum, a fact easily accounted for by the gypsum formation of a large part of the hill above, which gives it its name Gypsádes. The earth indeed rather resembled cement and was distinctly harder than the soft local rock, or 'kouskouras', from which it was otherwise indistinguishable.

Quarrying by 'Wager' System.

The excavation of this was really like quarrying work, and the full extent of the task before us only gradually revealed itself. A trench, however, was begun along the outer edge of the construction by means of the system of 'wagers', according to which workmen arranged in groups of five dig out contiguous pits as staked out, competing against each other;

Modern Road from Candia to Pedeada, etc. (above).
South House (showing Restored Upper Story).
Vlychià Terrace with 'Caravanserai' and Spring House.
Piers of Viaduct.

Fig. 44. View of Vlychià Terrace with Remains of Viaduct and 'Caravanserai' from near South House.

the first prize being awarded to the group which first reaches a fixed level. The Cretan workmen enter into the spirit of this and put their full energy into the work, so that its progress is thus enormously speeded up. In spite,

FIG 45. THE 'WAGER' SYSTEM OF WORK; AS ILLUSTRATED BY EXCAVATION OF 'LITTLE PALACE'.

however, of this expeditious method, and the welcome discovery of a store of sharp English picks, progress in this case was very slow, and the trench itself had also to be lengthened out in successive sections as the structure itself was followed out. It took twenty men, with shifts, six weeks to complete this piece of work.

The wager system in operation is well illustrated by Fig. 45, taken

when excavating the thick deposits of remains of later date above the West border of the Little Palace, described below.[1] The workmen are here seen competing in four pits, watched by our then overseer, old Gregori.[2]

Massive Piers of Minoan Viaduct unearthed.

This lengthy task, however, resulted in bringing out beneath what we had at first believed to be a purely natural rock surface the most colossal block of Minoan construction that has come to light either at Knossos or elsewhere. A second course of masonry made its appearance beneath the superficial blocks; then another and another, as the trench gradually deepened, till as many as eight, in places nine, could be counted from the base. As will be seen from Figs. 46, 47 and Suppl. Pl. XIV, what we had to deal with were the massive piers of a viaduct, preserved probably to about half their height, ranging in width from 4·60 to 3·27 m. They were built against the 'kouskouras' slope with stepped intervals, evidently for the free passage of flood waters from the hill-side above. Beginning from the North end, the successive intervals between the piers were 3·10 metres, 2·25 m., and 2·30 m. In the case of the interval between the third and fourth piers there were four steps, in the others three. Above the steps in each case was a slanting pavement rising about 1·6 in 10 to the inner border of the piers, and at this point met by a steeper cutting in the soft rock.

Stepped intervals for passage of water.

The upper steps themselves did not terminate in an even line like those of Minoan stairs, but formed an integral part of the flagging, and there is little doubt that those below were formed in the same overlapping manner. This arrangement tended to greater solidity, and was indeed in keeping with their special function, which was not that of flights of stairs in the ordinary sense, but for the fall of water. There is, in fact, a drop from the lowest step varying from about $1\frac{3}{4}$ to 2 metres.

These were undoubtedly the stepped and flagged channels of great culverts, the upper parts of which were bridged over to support the roadway, and it seems preferable to suppose that the openings were vaulted over by means of corbelled arches.[3] Free space had to be allowed for the conveyance of flood waters descending from the slope. Above the highest point of the bank there is evidence of blocks belonging to the structures resting on the natural rock, and, as this point is in one case 6 metres above the base of the pier,[4] the summit of the vault of the arch must have stood at a height of at least

Corbelled arches probably above intervals.

[1] See below, § 54, and compare *Knossos*, *Report*, 1905, *B. S. A.*, xi, pp. 2–16.

[2] Gregorios Antoniou.

[3] The possibility of the employment for this purpose of massive wooden beams may be admitted. But the analogy of Mycenaean bridges points to the horizonal stone arch.

[4] In the case of pier 2, another block, behind pier 3, is 5·25 m. up.

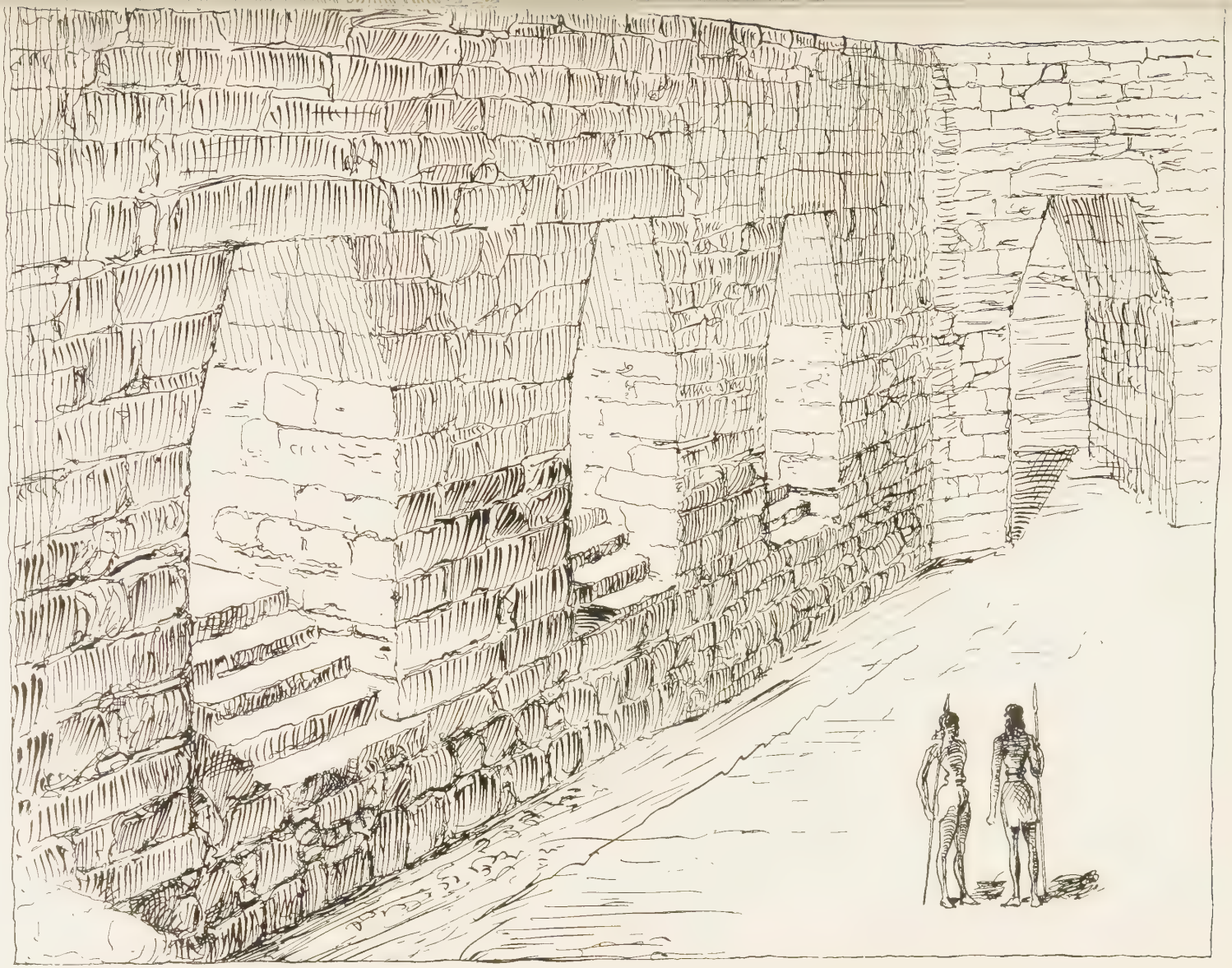


FIG. 46. RESTORED VIEW OF SECTION OF VIADUCT. (BY THEODORE FYFE.)

8 metres from the ground. The roadway itself would have been raised quite 10 metres above the outer ground level or about $32\frac{1}{2}$ feet. (See restored sketch, Fig. 46[1].)

The portion of the base of the Viaduct thus excavated was 21·50 metres ($68\frac{1}{2}$ feet) in length. It consists of four piers with intervals, of which the first pier, though broken away at its extremity, is 4·60 metres wide or nearly a metre and a half more than the others. The natural rock of the slope here juts forward so that the West end of the stone-work is little more than a facing. This end of the pier approaches the present bed of the brook. There are reasons for supposing that the main course of the Vlychià torrent originally ran along the Northern border of its glen, close by the point where the Stepped Portico on that side begins, and where the most recent exploration has revealed a deep embankment wall. Whether or not there may have been some tributary watercourse following the same direction as that at present taken by the stream, this projection of the rock seems to mark the point where the Viaduct took a Northerly turn. This would have enabled it to cross the main channel of the Vlychià, a little farther off on that side, at a right angle, its bridge-head thus linking on to the walled embankment and the road system and stepways beyond, of which more will be said in Section 38, below.

W. Pier Point of abutment of N. Section.

Leading toStepped Portico beyond.

The courses of masonry below the level of the steps were composed of roughly hewn blocks with a good deal of filling in of smaller stones and chips with clay mortar in their interstices. This part of the structure, which possibly goes back to an earlier date, was evidently less conspicuous to the eye and perhaps at times under water. Above the level of the lowest step, however, the work improves and, especially in pier 3, well-squared ashlar masonry is visible, sometimes showing a system of headers and stretchers. The stone-work was finely compacted with a very hard clay mortar which gave the whole structure great solidity.[2] The dimensions of the better squared blocks ranged up to about 1·75 m. by 0·60 m., of the more roughly hewn to

Character of masonry.

[1] From a drawing by Mr. Theodore Fyfe, F.R.I.B.A., Master of the School of Architecture in the University of Cambridge, based on the elevation of M. Piet de Jong, Architect of the British School at Athens.

[2] The construction here presents a very distinct contrast to that of the abutment of the great bridge S.E. of Mycenae (see Fig. 43, above: from a photograph taken by me in 1924). The blocks there, of which seven courses are visible, have thicker proportions, and are fitted together in a manner roughly resembling polygonal masonry. They contain very few smaller stones in their interstices nor is any clay mortar visible. Blocks measured by me there were 1·15 and 1·30 m. in length and 80–85 cm. high.

1·40 m. by 0·75 m.; a corner slab 30 cm. thick was 1·15 m. by 1·10 m. Many of these large blocks were too big for convenient transport by later plunderers of building material and the tops of the piers were largely strewn with chips produced in the process of breaking up blocks for removal—a phenomenon often repeated on the Palace site itself. Opposite the second pier, indeed, two rows of superposed blocks are seen below, evidently in the position in which they had been projected by some shock, possibly of a seismic character, from the fabric above (see Fig. 47). But in view of the above evidence we may conclude that the disappearance of the upper part of the Viaduct was not so much due to the destructive forces of Nature as to the deliberate action of those who used it for a quarry. That the destruction stopped where it did was doubtless owing to the circumstance that the diluvial earth washed down from the hill-side, which had reached this level, had itself become to such an extent petrified by the gypsum in the water as to render the task of demolition too laborious.

Conjectural breadth of roadway.

Judging by the fact that the width of pier 4 from its exterior line inwards, as well as that of the ascending pavement between it and pier 3, is 5·25 metres, we must assign at least this width, or about 16 feet, to the surface of the road. It is true that blocks belonging to the filling between the inner edge of the piers and the natural slope of the rock extended 2 metres beyond this line, but this cannot be taken as a proof of a greater width for the roadway. The width of about $5\frac{1}{2}$ metres—which must be taken as a minimum—is itself roughly a metre and a half more than the average width of the Minoan built way across the Island, of which the traces have been described above. It must be borne in mind, however, that, as there pointed out, the terminal section of this transit road as it approaches Knossos forms in fact a trunk line representing the junction of the Great South Road with another important line leading East to Lasithi and the country beyond it. As regards the width of the Viaduct an interesting parallel is presented by the abutment of the 'Cyclopean bridge' at Mycenae which is about 6 metres in width (see Fig. 43, above). Here again we have to do with a main artery of communication, which, besides its direct continuation to the Gulf of Nauplia, would have received a branch leading through Argos to the interior of the Morea.

Trunk line of Transit Routes.

Traces of continuation of road S.E. of Viaduct.

The fourth pier of the Viaduct abuts abruptly on a spur of the natural rock, and from this point the remains of the construction, which here started on a higher level, break off. Some blocks that had been used as a filling on the inner side were, however, visible at intervals along the high bank that here overlooks a little level plot used for gardens, bordering the

Vlychià brook. This bank forms the edge of a narrow plateau underlying the Gypsádes slope and traversed by the old and new roads from Candia on

FIG. 47. VIEW OF REMAINS OF VIADUCT, LOOKING S.E.; SHOWING FALLEN BLOCKS.

Beneath Vlychià terrace.

their way inland. It is evident that the Minoan built way headed for a shoulder of the same plateau, somewhat to the left of the later routes. There are signs indeed that, as it followed the slope a little beyond the fourth pier, it took, at any rate in its Late Minoan form, a slight Easterly bend.

About 18 metres beyond this pier an interesting development was brought out by an exploratory excavation in the shape of the projecting angles of Middle Minoan houses, the lower part of the walls of which, when already in a ruined condition, were clearly used to support the substructures of the Minoan road. The pottery here found in connexion with house floors ranged from M. M. II *b* to the close of M. M. III. The latest class represented types of the Temple Repositories of the Palace and of the considerable series of deposits contemporary with those found in the East wing. They attest the widespread ruin that overtook the site of Knossos at that epoch as to the significance of which, in relation to a great earthquake, more will be said in a later Section.

M. M. Houses used as road foundations.

The pottery associated with the Viaduct itself seems to have belonged to rubbish heaps connected with an extensive hostel or 'Caravanserai' described in the succeeding Section. All the sherds found were of the First or Second Late Minoan Periods.[1] The preponderating element was L. M. I *a*, the fragments going back to the very beginning of that epoch and presenting good examples of the new and characteristic use of bright red pigment painted on the clay slip. This was often associated with reeds and floral motives such as crocuses, taken over, as we now know,[2] from contemporary fresco designs. Part of a large jar showed the reeds in a close series after the manner of the thickets in which they grow. Very well represented too was the succeeding L. M. I *b* style, the rare occurrence of which on pottery from the house floors of the Palace was simply due to their continuous use to the end of the succeeding Period. The designs often show rocks with seaweed gracefully waving in the water, and sea creatures.[3] From the abundance, indeed, of such fragments here and on many of the house sites, it seems probable that this the most elegant of all Minoan forms of vase decoration—early known from the Marseilles *aiguière*—was largely distributed from Knossos itself. In close relation to the examples of this class there also appeared painted sherds with more formalized designs, typical of the last Palace Period (L. M. II). But at this point the ceramic remains tailed off, and in Dr. Mackenzie's opinion not a single sherd occurred 'which could with certainty be set down as belonging to even the earlier part of the Third Late Minoan Period (L. M. III *a*)'.

L. M. I *a* pottery associated with Viaduct.

This evidence will be seen to agree with that already given above which shows that the road construction passed over the remains of houses

Disuse of Viaduct

[1] The pottery found here, as well as that associated with the Middle Minoan house floors, was carefully studied by Dr. Mackenzie.

[2] See below, § 53.

[3] On the 'marine' style of vase decoration, see below, p. 500 seqq.

corresponds with destruction of Later Palace.

that were in existence in the last Middle Minoan Period. We may infer that the Viaduct in its final form dates from the beginning of the Late Minoan Age.

These ceramic materials, though abundantly forthcoming in the upper part of the deposit, especially in connexion with the two Easternmost piers, do not extend below the level of the lowest of the steps in the interval between them. In part at least it may well stand in relation to some restoration of the upper part of the structure at the beginning of the Late Minoan Age, consequent on an overthrow similar to that of which we have evidence beneath the next section. The fact that no sherds are later than the close of L. M. II may also be taken as an indication that the Viaduct went out of use about the date of the destruction of the Palace itself.

There is nothing to warrant us in going beyond this and concluding from the association of L. M. I–II pottery with the upper part of the remains that the original structure itself belonged to the same late epoch. It has indeed already been noted that the comparative roughness of the lower courses itself points to an earlier date than some of the more finished work above. We have seen that the actual discovery of this monumental structure was due to the correspondence of what appears to have been the terminal angle of this section towards the North-West with a prolongation of the line pursued by the Stepped Portico on the opposite side of the glen. Some direct connexion must surely have existed. But the Portico and an adjoining road pavement immediately West of it, to which attention will be drawn below, as well as the supporting embankment wall, owe their original construction to the enterprise and engineering skill that produced the Early Palace itself and to which they integrally belong. They immediately overlay indeed remains of what has been termed above the proto-Palatial Class, dating from the earlier phase, *a*, of M. M. I.

Strong presumption that original elements of structure date from foundation of Palace.

In any case it is clear from the evidence put together in the preceding Section that an important roadway approached the Palace site from the South long before the beginning of the Late Minoan Age. We have indeed seen that on a series of stations along the great transit route across the Island, sherds occurred belonging not only to the Middle but to the earlier part of the Early Minoan Age.

§ 37. 'Caravanserai' by Road-Head: Pavilion and Partridge Frieze, Baths, and Spring-Chamber.

Terrace level above Minoan Road-head—named from Vlychià ('brackish') Spring: Stone basin struck, leading to discovery of large building; Novel character of building: Basements with cobbled floors and corn-bins; Cement floors and roof of upper story: Stepped Pavilion with painted decoration; Frieze with Partridges and Hoopoes—delicacies of the table: Round-leaved plant, perhaps Dittany; Dark background of second group; Conventionalized foliage, contrasting with 'House of Frescoes', of same L. M. I a date; Stone bath for washing feet—elaborate water-system; Painted decoration of Bath Compartment; Chamber with Clay Bath-tubs; Indications of hot-water supply; Underground Spring-Chamber; Steatite lamps and stone candlestick; Spring basin and Niche for lamp; Re-use of Chamber as shrine after interval of time; Offertory vessels: Hut-urn with Goddess—'sub-Minoan' character; Hut-urn from Phaestos; Italian and Saxon hut-urns compared—Temple of Vesta and Casa Romuli; Cylindrical stands with openings—example imitating Round Tower; Bowls with food offerings, including grains of olives; Incense-burners and 'Stirrup Vase'; Group of vessels with linear decoration: Comparisons with contemporary Cretan, &c., Tomb Groups; Represent 'proto-Geometric' stage; Disuse and natural sealing up of Spring-Chamber; Building as a whole for public use; A Caravanserai or Hostel at terminus of Great South Road.

Terrace above Minoan road-head named from Vlychià spring.

Almost directly above the spot where the remains of the Middle Minoan houses underlay the later road foundations, its course must have reached the level of the narrow Vlychià terrace already mentioned, the Northern edge of which is bordered by the steep bank leading to the alluvial flat below. This terrace level had been sown with corn, but its stunted growth and premature straw colour gave the impression that there was here only the scantiest coating of soil above the 'kouskouras' rock. At one point only there showed a narrow green patch of taller corn, and we found on inquiry that the Beys, who formerly owned the property, had at this spot on two occasions extracted wrought blocks. A little beyond this an irrigation runnel crossed the narrow plateau, plunging down to the left, through a thicket of reeds on the edge of the declivity, to the garden flat below. Its water came from a copious source that issues from the flank

Vlychià spring.

of the Gypsádes hill by the old road from Candia and close to a ruined wayside inn or 'taverna' that had been still in use in the early days of the excavation. This source, known from its slightly brackish taste—due to gypsum infiltrations—as the Vlychià spring,[1] gives its name to the whole gorge including the brook below, and is still used by man and beast. It will be seen to have played an essential part in relation to an extensive Minoan building on the neighbouring level site.

Discovery of stone Basin.

The green patch whence the blocks had been abstracted naturally invited excavation. This resulted in the discovery below, *in situ*, of the finely wrought slabs of a shallow basin, which formed in turn the starting-point of two lines of wall, 2·10 metres distant from one another, running South. It was from the top courses of these that the Bey had obtained his material, but, with the patience of a tomb robber, he had also grubbed beneath the floor of the stone basin in the search for treasure. Happily, perhaps regarding it as a screen for further tunnelling, he had left this, the most important part of the construction, practically intact, and used the basin to plant a fig-tree. The appearance of the double line of walling, and the fact that the course of the Minoan road ran past this spot, made it on the face of it probable that we had hit on the *dromos* of a built tomb, in relation to which the cist-like stone construction might possibly have fulfilled some ritual function, like the sunken areas of Minoan dwellings, palatial or otherwise. The reality, however, turned out to be very different.

Bath for foot-washing.

As a matter of fact careful excavation showed that we had to deal with an elaborately constructed stone bath of shallow dimensions, evidently designed for washing the feet, open on what afterwards proved to be a front yard on the North, and forming an integral part of the façade line of an important building.

Discovery of large building by road-head.

The necessity of exploring the area to the East and West of this point on a large scale was at once apparent, and recourse was again had to 'wager' work on the indurated surface. The deposit, consisting largely of disintegrated 'kouskouras', was hardly distinguishable from the native rock except by its superior hardness due to the gypsum infiltration, and the work proved to be most gradual and laborious. The result, so far as it has been possible to carry it out, was to bring out a section of a Minoan building with a frontage towards the road of over 50 metres, the Plan of which, by Mr. Piet de Jong, so far as it could be recovered, is given in Fig. 48.

[1] *'στὴ βλυχιὰ βρύσι.* It is pronounced *Vleechià* in the local dialect. The torrent-bed below is known as *τζῆ βλυχιᾶς τὸ ῥυάκι.* Professor R. M. Dawkins informs me that *βλυχός* (brackish) is used dialectically for *γλυφός.*

From the first it proved to be of an unexampled character. Immediately bordering the foot-washing basin on the East was an elegant Pavilion with a single-columned portico, stepping up from the Court. Beyond this, so far as the front part of the building was concerned, what had been preserved were basement-rooms and passages. These were traversed, about 5 metres E. of the Pavilion, by a stone-built conduit, the roof slabs of which appeared on the floor levels and which clearly represented the main channel of the spring above. In a small side chamber off the room immediately left of the Pavilion were carbonized remains of wooden planks, and with them burnt corn, apparently barley, showing that it had contained corn-bins. In a basement space beyond (see Plan, Fig. 48) were fragments of *pithoi*, some of which presented the particular form of rope ornament that is characteristic of the early part of L. M. I. A remarkable feature about these basements was that, in place of the beaten earth or flagging usual in such places, there were everywhere traces of cobble-paving, which, as our Cretan workmen observed, was 'good to keep beasts' hoofs hard' and suggested to them the idea of stabling. The pack-animal chiefly in use at the beginning of the Late Minoan Age when this building was constructed was doubtless the ass, and oxen for large wagons.[1]

Its novel character.

Basements with cobbled floors and corn-bins.

It is probable that there was an entrance from the yard giving direct access to this basement system, but its frontage East of the point where the stone conduit emerges from the outer wall had been entirely denuded. All along this border of the constructions the edge of the declivity that bounds the terrace level on which they stood has worked backwards, so that the North-East angle of the building has been completely cut away, and with it, naturally, the section of the presumed course of the old roadway that would have passed it at a few paces distance. Farther on, just below the top of the bank, a receding angle of the outer wall, showing good ashlar blocks, has been preserved, giving a clue to the point where the front line of the building originally receded, and a little East of this is another angle marking a further recession, in this case of $2\frac{1}{2}$ metres. Beyond this, again, the outer wall-line is still traceable along the upper part of the declivity for another 2 metres, but how much farther it may have extended East beyond this point remains uncertain.

N. angle of building denuded.

In the North-East part of the basement area were masses of fallen bricks, turned to a golden yellow tint by a conflagration that had destroyed this quarter of the building, and in these the straw that had given con-

Cement floors and roof of upper story.

[1] See below, p. 157 and Fig. 79.

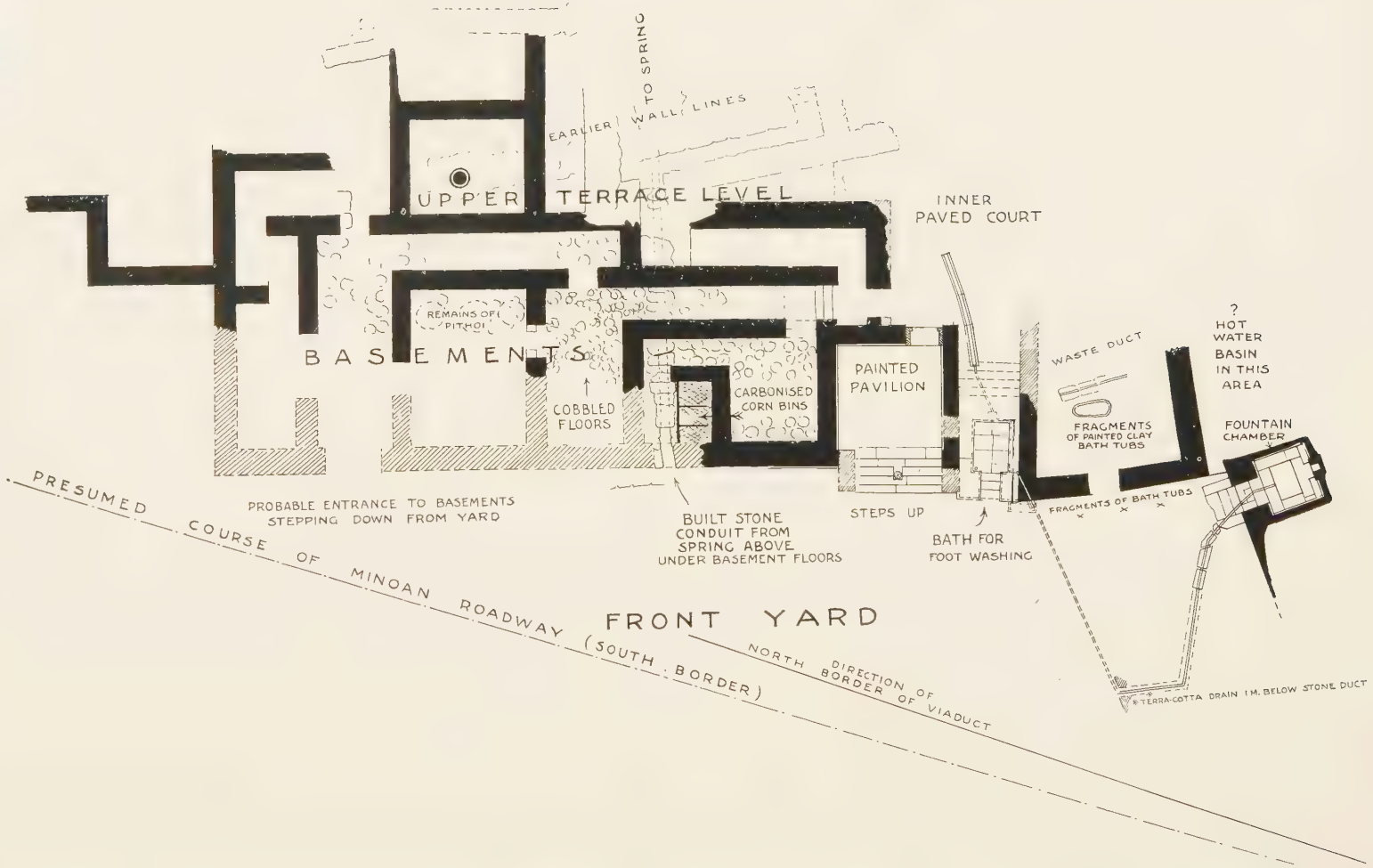

TO SPRING
EARLIER WALL LINES
UPPER TERRACE LEVEL
INNER PAVED COURT
REMAINS OF PITHOI
BASEMENTS
COBBLED FLOORS
CARBONISED CORN BINS
PAINTED PAVILION
WASTE DUCT
? HOT WATER BASIN IN THIS AREA
FRAGMENTS OF PAINTED CLAY BATH TUBS
FOUNTAIN CHAMBER
FRAGMENTS OF BATH TUBS
PRESUMED COURSE OF MINOAN ROADWAY (SOUTH BORDER)
PROBABLE ENTRANCE TO BASEMENTS STEPPING DOWN FROM YARD
BUILT STONE CONDUIT FROM SPRING ABOVE UNDER BASEMENT FLOORS
STEPS UP
BATH FOR FOOT WASHING
FRONT YARD
DIRECTION OF NORTH BORDER OF VIADUCT
TERRA-COTTA DRAIN 1 M. BELOW STONE DUCT

FIG. 48. PLAN OF FRONT SECTION OF 'CARAVANSERAI', FACING NORTH, SHOWING SPRING-CHAMBER TO RIGHT (BY PIET DE JONG).

sistency to the clay was clearly visible. At many places throughout the basement area there also occurred fallen fragments of the fine cement pavement (*tarazza*[1]) belonging to the story above. This cement, with its underlying coating of red earth and its smooth surface packed with minute water-worn pebbles, is the same as that which occurs in the Palace light-wells, but in this case—quite exceptionally—it had been used in place of the ordinary pavement for the floors of the upper rooms. In the neighbouring Pavilion, indeed, it is thus seen *in situ*, the polished surface of the stones giving a variegated effect. Besides these fragments representing the pavements of the rooms above, there were others of a different class unquestionably derived from the roof construction of the first-floor rooms, and showing that there was only one upper story along this section of the building, with a roof terrace above. In this case the *tarazza*, though of the same composition above as that of the floors, shows a backing of bluish black clay of a specially impermeable kind, known as *lepìda*, still in general use among the Cretan peasants for the roofs of houses.[2] In the North-East part of the basement area were also found many fragments of fine white-faced stucco and others of a brilliant 'kyanos' blue colour, belonging to the walls of upper rooms.

At 8·50 metres distance from the outer wall-line of the basement area the floor-levels step up, so that the constructions beyond that terrace line belong to the same *piano nobile* as the Pavilion and the upper-story rooms East of it. It will be seen from the Plan, Fig. 48, that an older system underlies this terrace level, with a solid block of wall, more massive than those of the later building, and running at a divergent angle. The remains of the constructions on this higher level being nearer the surface had been very much denuded, and various tests made gave little promise of any satisfactory result being obtainable from further excavations on this side. At the East end of the system, however, the outline of a rectangular walled enclosure was brought out, within which, resting on the remains of the earlier wall, was a roughly rounded block with a flat face which had evidently supported a column-base, about 60 cm. in diameter. This in all probability bordered a light-well belonging to some important hall on that side, though whether there were originally more bases of columns must remain uncertain.

Piano nobile.

[1] Ταράτσα is the Romaic form.

[2] Good examples of this roof cement found at the S.E. Palace Angle are described below, p. 327, Fig. 185.

Fig. 49. Restored View of Stepped Pavilion, showing Arrangement of Painted Decoration (by E. Gilliéron, fils).

The Stepped Pavilion and 'Partridge Frieze'.

Stepped pavilion with painted decoration.

The central feature on the North front of the building was a very elegant pavilion or *loggia*. This was approached from the front yard by a little portico with four steps,[1] and a slender central column. (A restored inner view showing the original arrangement of the wall-paintings is given in Fig. 49,[2] and the façade appears in Fig. 55, below, in relation to the neighbouring bath compartment.) This portico presented a peculiar arrangement, its Eastern enclosing wall overlapping the corresponding side of the chamber within, so as to leave a kind of narrow alcove, well adapted for a wooden bench. Entrance from the interior side of the building was obtained by a doorway at the end of the West wall of the chamber. Only the lower part of the walls of this chamber had been preserved, but they enclosed masses of debris from the upper part, including important fragments of painted stucco which supplied all the elements for a restoration of the interior decoration. Round the lower part of the walls the painted stucco still adhered, a small set-back on their surface having been purposely left for its reception. There were here preserved at intervals, between fields with a fine white facing, representations of pillars of an ochreous yellow tint with red bases, recalling the coloured 'stockings' of the columns of buildings in Minoan frescoes.[3] The fallen remains showed that in this case the pillars, which were the same width (27 cm.) throughout, presented blue bands of the same dimensions at their tops.

The pillars supported an architrave of the same ochreous yellow hue, 23 cm. in width, representing the wooden beam that formed the continuation of the lintel over the door, and directly underlying a frieze of elaborate design. This, in turn, was bordered above by a band 8 cm. wide, consisting of narrow red, yellow, black, and white stripes, evidently intended to depict a cornice immediately under the ceiling level. Three pillars were visible on the right and left walls, but only one on the back wall, the place of the others having been to a certain extent filled by the door-posts which were probably painted in the same colours. Neither were the pillars on the E. and W. walls quite symmetrically opposed, the interspaces differing by some centimetres. Their height, like that of the doorway, was about 1·80 metres.

The frieze itself was 28 cm. (11 inches) broad, corresponding with the

[1] The steps were broken off towards the East end, and with them the base of the enclosing pier. This has been partially restored in the drawing, Fig. 49.

[2] By Monsieur E. Gilliéron, fils.

[3] As for instance those of the fresco of the Pillar Shrine of the Double Axes, *P. of M.*, i, p. 443, Fig. 319. These 'stockings' may, as suggested above (*op. cit.*, p. 213), preserve a reminiscence of the high column bases of decorative stones characteristic of the Middle Minoan Age.

Frieze with partridges and hoopoes.

width of the supporting pillars, and, if we may conclude from its numerous fragments, was wholly devoted to the portrayal of partridges and occasional hoopoes, in a landscape setting. Its fallen remains were best preserved along the West wall, especially approaching the doorway, and thanks to the unfailing patience and acumen of Monsieur E. Gilliéron, fils, who was fortunately present at the first moment of the discovery, it has been possible not only to extract the fragments successfully,[1] but to reconstitute a section of the frieze 2·85 metres ($9\frac{1}{4}$ feet) in length, presenting three successive groups.

First group.

The first group (Coloured Frontispiece, above) starts on the West wall from the angle by the door, the plaster showing a flat end which marks the junction : it was, in fact, found near the corner of the floor immediately below. The fore-parts of two partridges, practically preserved in their entirety, are seen emerging from a bushy steep which is indicated in a curiously conventional manner. In close relation to this was found another very complete group of fragments, showing a third partridge standing on a little knoll opposite the others as if engaged in consultation with them, while behind him is a hoopoe perched on a bush with round leaves.[2] That we have to deal with a bird resembling our Red-legged or French partridge[3] is clear. Here, and in the other examples, we see not only the red legs very vividly rendered, but the characteristic bars on the sides and the gorget carried down from the eyes to the throat. The distinct colouring of the feathers as well as the ruddy hue of the legs shows that the male bird has been chosen by preference for reproduction, but the blunt spur to which he has a right is not given in any instance. The hoopoe, of which another specimen appears on the ground in the third group, has his crest erect, but the ruddy buff hue of nature is here converted into a brilliant orange yellow —as if the artist had in his mind the widespread folk tradition of the crest feathers having been divinely exchanged for a golden crown. The hoopoes here do not represent such a successful artistic effort as the partridges. Ancient Egypt, to which we naturally turn for faithful zoological observation, has produced a better likeness of the bird both in detail and colouring in

Red legged partridges.

Hoopoes.

[1] In raising the fragments M. Gilliéron had the assistance of our *formatore*, George Lasithiotis. But the work was long and laborious.

[2] Of the partridges the front of the head and breast and the fore-leg are wanting, but these can be completed from other examples. Most of the tail of the hoopoe is also lost, but it is supplied by the specimen of the third group (p. 115, Fig. 53).

[3] It must be actually identified with the closely allied *chukar* (*Caccabis chukar*), common in Crete and the Aegean Islands and also in Cyprus, which has similar red legs, and indeed is only distinguished from the French partridge 'by having the lores or space in front of the eye white instead of black' (R. Lydekker, *Royal Natural History*, iv, p. 409). The fresco representations being seen in profile it is hard to make this out.

a wall-painting of a XIIth Dynasty tomb at Beni-hasan.[1] In that case the hoopoe is perched on a Mimosa bush. The round, often paired leaves of the bush on which the hoopoe is perched in the first group of this Cretan frieze (see Fig. 51) suggest the possibility that, in spite of its thicker stem, the plant may be intended to represent the true dittany, the marvellous healing herb of Crete, described above, as growing on the rocks above a votive cave.[2] Fig. 50 shows a spray with paired, rounded leaves, from a sketch made there, at a time when the plant was not in bloom.

Round-leaved plant, perhaps dittany.

Fig. 50. Spray of Dittany.

The single-stemmed shoots of this and the succeeding scenes resemble those of the wild myrtle and show its characteristic red stems.

This group of birds appears against a light background, framed above and below with sinuous bands—dark and light blue, white, ochreous yellow, and pink, and also a little strip of pale green. The blue that borders the field behind the first pair of partridges ramifies into narrower strands, with curious hairy edges and small projecting points, winding about like trailing briars, of which they are possibly a reminiscence. This is very far from Nature, but not more so than the formal asterisks which here and there throughout the composition may be taken as symbolical of flowers. The downward curves visible above seem to be intended for a rock border and exemplify a recurring characteristic of Minoan Art, well illustrated by the Vapheio Cups and which, as we know from the inlaid dagger of Queen Aah-hotep, reappears in the contemporary Art of Egypt.[3]

Conventionalized foliage and rocks.

The second scene (Frontispiece, below) which, from the indications afforded by the lie of the fragments, occupied the succeeding wall section for a length of about 1·7 metres, shows partridges against a black ground and, though there are breaks in continuity, the fact that espacement has to be allowed for four birds thus delineated, supplies a very near clue to the length of this group. It may be observed in connexion with it that, though an alternation of colour in backgrounds is a usual feature of Minoan wall-paintings,

Second group: dark background.

[1] *Beni-hasan*, Pt. iv, Pl. 6 (from Tomb 3): and see another reproduction of Mr. Howard Carter's drawing in *Ill. London News*, 1924 (Feb. 7), p. 207, 2. The tail, however, is wrongly represented as forked and with a white termination. The Mimosa (*Acacia nilotica*) is the Egyptian 'sont'-bush.

[2] For this and for the 'Crooked Nostril' Cave, see above, pp. 68–71.

[3] See *P. of M.*, i, p. 713 and Fig. 537.

these, except the white, are of more or less vivid hue, such as *kyanos* blue, Venetian red, or yellow. The appearance of a black background—on the right, too, abruptly bordering on the light ground—is hitherto unexampled in such a series.

On the extreme left a male partridge, well shown in the restored sketch in black and white, Fig. 51, raises himself to his full height,[1] flapping his wings, and with his beak slightly parted,[2] like a cock about to crow. It is

Fig. 51. Restored Drawing of Hoopoe and Partridge.

well known that cock partridges both at nightfall and at dawn give vent to a shrill cry, like the warning of chanticleer. Is it possible that the black background against which this bird is outlined, in contrast to the daylight scene beyond, may be actually taken as a representation of night? Another explanation, however, may be found in the fondness of these Cretan partridges for entering caves, whether in the hot sun for shade or to take shelter there at night. The natives encourage the habit by spreading a train of food into the cave, the natural opening of which is artificially narrowed, and then trapping them by suddenly closing the entrance.[3] This latter suggestion is

[1] 27·5 cm. as against 25 cm. in the case of the preceding bird.

[2] This, however, is also observable in the beaks which have been preserved of the other partridges. The hoopoe's beak in group 1 is closer.

[3] See on this, A. Trevor Battye, *Camping in Crete*, pp. 44, 45. A cave on Akrotiri is specially mentioned. 'I was told that the Monks of Hagia Triada supply their game larder from the cave in question.'

supported by a definite piece of evidence. Immediately before the pair of birds that succeeds the first partridge in this scene as here put together, a brown incline appears with oval pebbles seen in section, brilliantly banded according to the Minoan convention, which seems to be a regular indication of the conglomerate rock or 'plum-pudding stone' so abundant in the neighbourhood of Knossos, and everywhere favouring the formation of caves and rock shelters. The green band, moreover, on which this pair of birds is perched, which extends to the spot where another partridge stands behind, is strewn with smaller pebbles of the same appearance, which may well indicate the floor of such a grotto. These must not be mistaken for eggs.

The overlapping red feet of the pair of birds that forms the centre of this group, which are for the most part preserved, are very finely rendered. One of the two partridges is raising himself on his toes and a wing-tip shows that he was spreading his wings like the first bird. The heads of the two birds, looking in opposite directions, are restored from a pair seen against a light ground belonging to the scene beyond. Only a fragment was preserved of the fourth partridge of this group.

Third group.

Almost immediately beyond this figure the background again changes from black to white. Here, by the border, with myrtle-like sprays like those already noted growing out of it or behind it, is part of a low bushy plant, thick set with numerous branching stems radiating into spiky ends. This recalls the prickly green tufts of the *Cichorium spinosum*,[1] with its starlike pale blue flowerets, so frequent among the Cretan rocks, where the weary wayfarer does well to beware of its inviting cushions. Part of the breast of another partridge is seen on the same fragment just above this, and in close relation again, near the same wall-section, was found the interesting piece showing the reversed heads of two more partridges with overlapping necks. In the same group, as tentatively reconstituted by Monsieur Gilliéron, fils, has been placed the second hoopoe, which is perched among the coils of blue hairy bands like those described above as possibly symbolizing trailing briars. In close relation to the figure of the hoopoe was a fragment giving not only the full width of the yellow architrave, but a part of the blue upper section of one of the supporting pillars, evidently the last of the internal representations of pillars on that side of the Pavilion. From this point, however, later disturbance had removed all further remains of the fallen fresco on that side.

[1] From its use as a stopper for water-pots this plant is known to the Cretans as *σταμνάγκαθο, σταμναγκάθι, ῥαδικοστοιβίδα* (Heldreich, *Τὰ δημωδῆ ὀνόματα τῶν φυτῶν*, published by Sp. Miliarakis, Athens, 1910, p. 54). Professor W. M. Dawkins agrees in this identification. *Poterium spinosum* (*στοιβίδα*) is used for the same purpose.

Comparisons suggested.

In the Frieze of Partridges we see a Minoan decorative painting under a novel aspect. For the birds themselves, with their careful rendering of characteristic details, the pheasant of the Hagia Triada wall-painting[1] might have afforded an adequate parallel had it been better preserved. The delicate delineation of the feathers, however, is still better illustrated in the fine contemporary fragment from the Palace at Knossos, showing the tail feathers, apparently also of a pheasant,[2] and part of the expanded wing borders. The birds and beasts that play a part in these more animated scenes, of which we now have a brilliant illustration in the recently discovered 'House of the Frescoes' at Knossos,[3] are set in a wilderness of variegated rocks, vividly but naturally veined, amidst a profusion of flowers. The ivy and wild roses rambling over the crags, the lilies and irises and many-hued crocuses, the flowering sedges and vetches, the Minoan versions of papyrus tufts—there is nothing here of all this. Apart from a few stray sprays and bushes, the setting in which the more or less stationary fowls of the Pavilion frieze are placed, is conventionalized to such an extent as to become little more than symbolical. Even the overhanging rocks are reduced to a sinuous series of coloured bands, symmetrically arranged as on a piece of embroidery, while the trailing briars—if briars they be—are spun out into curving or curling wisps, and the flowers on the pale blue ground reduced to mere asterisks.

It may indeed be asked whether the painters' art has not been influenced in these cases by tapestry and the embroiderer's art.

Partridges and hoopoes as delicacies of table.

The secondary treatment of the background, which contrasts with the equal prominence given to all elements of the composition in the group of wall-paintings above referred to, marks the artist's desire to concentrate attention on the birds. Partridges, morever, are continually repeated—to judge by the section of the frieze recovered—interspersed with an occasional hoopoe. The character of the Pavilion itself, apparently designed for refection, with its alcove adapted for a long bench, may sufficiently explain the insistence on such an appetizing subject. The hoopoe, too, in Crete, as throughout the Levant, is still regarded as a special dainty.

The frieze gives an anticipatory assurance of good cheer and recalls, indeed, the walls of an old Dutch dining-room hung with pictures of game or domestic fowls, or of still-life more immediately referring to the table.

[1] Halbherr, *Mon. Ant.*, xiii, Pl. 8, and cf. Rizzo, *Storia dell Arte Greca*, p. 101, Fig. 34, and *P. of M.*, i, p. 538, Fig. 391.

[2] *P. of M.*, i, p. 540, Fig. 392 A.

[3] See below, p. 450 seqq., and Coloured Plates X and XI.

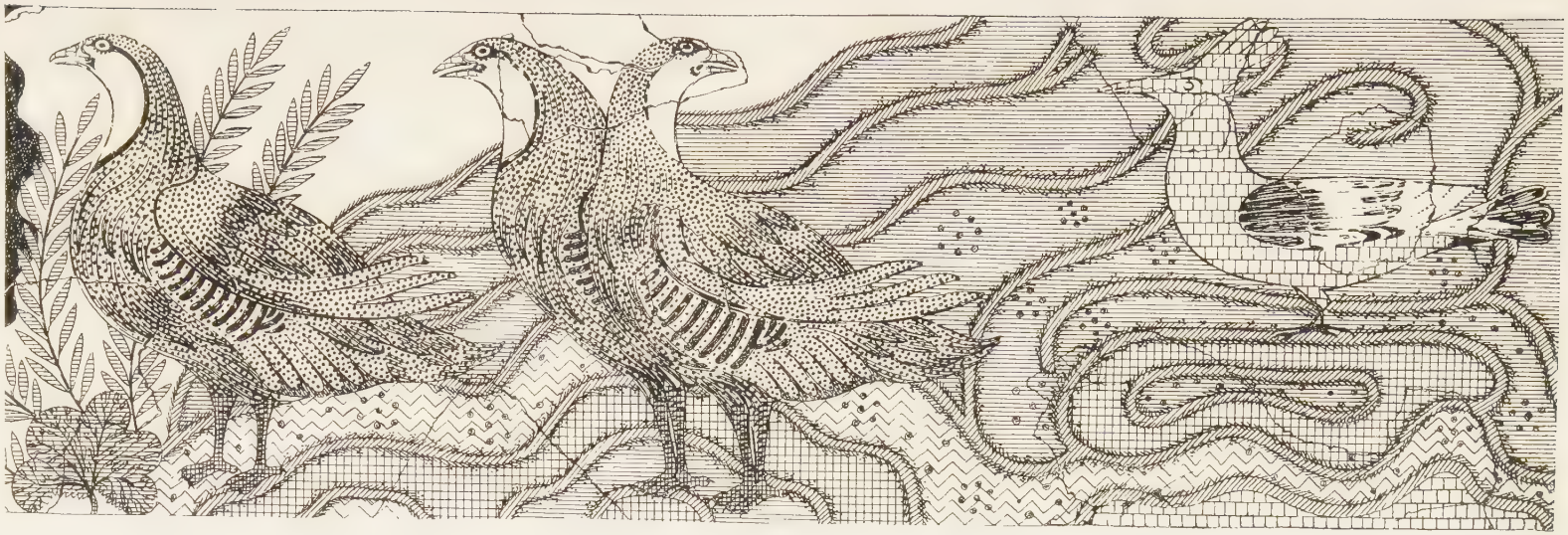


FIG. 52. THIRD GROUP OF PARTRIDGE FRIEZE, AS RESTORED BY MONSIEUR E. GILLIÉRON, FILS.

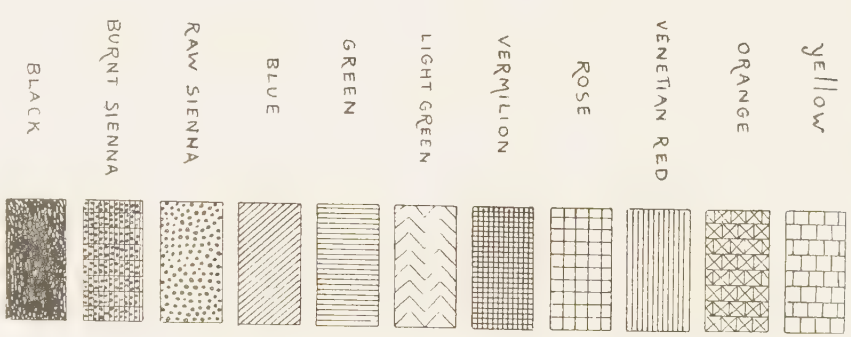


FIG. 53. KEY TO BLACK-AND-WHITE DRAWING.

FIG. 54. TUFT OF *Cichorium spinosum* AND MYRTLE-SPRAYS BEHIND.

Here, as in the parallel series, we are clearly debarred from seeing anything but pure genre, and, tempting as the suggestion may appear, it is not permissible therefore to connect the frieze with Perdix, the young inventor, the nephew of Daidalos, who according to the tale, when pushed over the cliff by his jealous uncle, was transformed into a partridge in mid air.[1]

Contemporary with paintings of 'House of the Frescoes'

Ceramic evidence, which carries back the foundation of the 'Caravanserai' to the transitional M. M. III–L. M. I epoch, points to the conclusion that the 'Partridge Frieze' is practically contemporary with the wall-paintings of the 'House of the Frescoes' referred, on similar grounds, to a date approaching the middle of the sixteenth century B.C. In the doorway of the Pavilion, however, occurred some fragments of painted stucco belonging to a distinctly later class and apparently showing that the original section above the lintel had become disintegrated owing to the jarring of the framework of the door, and had been renewed in the current style of a later age.[2] Among these fragments were found intact remains of a conventional floral spray closely recalling that which hangs down behind the Griffin's neck in the fresco panel of the Room of the Throne at Knossos, belonging to the latest days of the Palace.

Stone Bath for washing Feet.

Foot-washing basin.

The foot-washing basin already mentioned occupies the compartment of the building immediately West of the Pavilion, the wall of which on that side is common to the two. As in the case of the Pavilion, the bath could be freely entered from the yard, in this case by a descent of three steps, while on the South side a flight of five steps, equally open, led down to its upper margin from what seems to have been an interior Court on that side. The public nature of the bath was thus made evident, and for those approaching the inner Court by this avenue, foot-washing seems to have been obligatory. The basin itself was 1·52 m. (5 feet 11½ inches) from N. to S. and 1·38 m. (4 feet 6 inches) from E. to W. Its upper margin, 45 cm. (17¾ inches) high,

[1] Perdix was the Greek alternative name for Talôs (the winged Talôn of Phaestian coin-types) the swift-moving demon of Minos, and it may be suggested that Talôs is simply a translation of an old Eteocretan (or Minoan) name for 'partridge'. Among birds the Red-legged partridge is *par excellence* the runner—a fact noted in antiquity—as well as the low-flyer. Part of the folk-tales regarding it seem designed to answer the question 'Why does the partridge, so strong on the wing, run, or fly low?' Hence the explanation of a former fall. The tradition that Talôs (Perdix) invented the potter's wheel (Diod. iv. 76. 4), as well as the saw and the compasses, is an interesting record of indebtedness to Minoan civilization.

[2] In Fig. 49 the frieze of partridges as it originally existed is continued over the doorway.

FIG. 55. VIEW OF PART OF THE FAÇADE OF CARAVANSERAI RESTORED. SHOWING ENTRANCES TO PAVILION AND BATH FOR FOOT-WASHING.

gives the water-level, so that the water would have reached to the knees of an average Minoan man[1] who could also have easily used it as a hip-bath. The level of the slabs round, designed as seats for those performing their ablutions, was 27 cm. above the water-level, or 72 cm. above the bottom of the basin. These jutted forward about 20 cm. beyond the borders of the

FIG. 56. BATH FOR FOOT-WASHING AS RESTORED; STONE TROUGH TO RIGHT.

actual basin, between the upper surface of which and the slabs in question was another row of slabs stepping back (see, too, p. 126, Fig. 61), a novel arrangement repeated in the spring basin to be described below and doubtless designed to allow greater play for the legs of the bathers. There was an opening between the lines of slabbing for the descending steps on the North side, about 50 cm. in width. It is remarkable that though the sides of the

[1] The Minoans were a short race. Indeed, measurements taken from bones in the early ossuaries point to a mean height of only 5 ft. 4 inches, two inches less than the average height of the modern Cretans.

basin were very finely compacted of ashlar masonry, its bottom slabs, seven in number, were of gypsum.

Elaborate water system of bath.

The water system connected with the bath for supply, overflow, and waste was most elaborate. Above the steps leading down to it from the South, and descending beneath their upper edge, were three elongated limestone blocks channelled for the passage of water. These seem to have been partly relaid at a somewhat higher level towards the close of the last Late Minoan Period[1] when the bath itself was changed into a simple tank. It is probable, however, that they continued to maintain their original direction, pointing above to the source whence the main conduit already described was derived.

The Northernmost of these sections of the stone duct descends beneath the first step, and at this point its channel is made to curve down in a manner recalling the parabolic curves so skilfully devised to control the velocity of the descending water alongside of flights of steps, as noted in structures of the Palace belonging to the early part of the Late Minoan Age.[2] In this case, however, at least in the form in which these remains have been preserved to us, this curving stone duct brought the water to a terra-cotta pipe, the lower course of which has disappeared, but which headed for the South border of the bath. Here we may suppose was a small distributing basin (now restored), since in addition to the inlet into the bath itself, a very small groove had been cut in the blocks below the slabbing of the seats to conduct the water along the West side of the basin to an outlet visible just right of the entrance. This had evidently served to fill a drinking trough for beasts (see restored view, Fig. 55).

Supply pipe for drinking trough.

In the N.W. corner of the basin, very accurately cut so as to be traversed immediately above by the last described duct, was the overflow channel of the bath embedded in the masonry and crossing the angle of the wall diagonally. A projecting slab with the continuation of its channel shows that it must have been in communication with a drain running in a N.W. direction across

[1] Dr. Mackenzie notes that fragments of L. M. III *b* pottery occurred beneath the blocks of the water channel, including the foot of a one-handled 'champagne' cup of a type characteristic of that epoch. He observes that, owing to this raising of the surface, blocks had been inserted in the neighbouring doorway of the pavilion to prevent flooding. The lowest block of the left *anta* of this entrance, which is of gypsum, rests on a good limestone slab apparently representing the original pavement level of the Court, which is 14 cm. lower than the surface of the adjoining block of the conduit in its raised position.

[2] This system was first observed at the East Bastion (*Knossos*, *Report*, 1902, pp. 112–15, Figs. 67, 68, 69), and is also a feature of the Eastern flight of the 'Theatral Area', and of the step-way that runs up outside the South border of the Domestic Quarter (see Vol. iii). This latter step-way runs in part over a filled-in chamber of M. M. III *b* date.

the yard and forming a junction, near the presumed course of the Minoan roadway, with the drain or conduit that conveyed the superfluous water from the neighbouring Spring-Chamber. (See Plan, Fig. 57.)

Waste duct from bath.

But this does not complete the record of this elaborate water system. In order to empty out the bath basin, conveniently, it may be supposed, for cleaning purposes, a round hole was bored in the slab that occupies its N.E. corner, leading to a drain below. This may have been originally stopped by a removable wooden plug, but in the closing Late Minoan Period, when the bath was converted into a mere tank, the vent-hole was permanently blocked by the insertion into the gypsum slab of a close-fitting limestone disk.

From what has been said above it will be seen that no less than six ducts of various kinds contributed to the water system of this single chamber. It would be hard to find a better example of the Minoan delight in hydraulic devices.

Painted decoration of bath compartment.

The elegant fabric of the bath itself and the surrounding stone benches was maintained by the rest of the structure. There is evidence, moreover, that the style of painted decoration was closely similar to that of the adjoining Pavilion. The face of the block nearest to the line of the steps on the East wall, which is common to the Pavilion, shows a shallow cutting back of 15 mm. for the reception of painted plaster, answering to one in line with it on the Pavilion side, and the whole wall beyond, as in the other case, has been faced up with this slight recess. This block, moreover, bears on it the same white stucco, and, at its S. end, traces of part of a painted pillar like those that support the Partridge Frieze. Whether in this case the same subject was repeated above there is no evidence to decide, but the bathing compartment clearly formed part of the same scheme of decoration.

This foot-washing compartment was really a kind of narrow hall, 5·75 metres long and only 2·10 m. wide, open at both ends so as to give free access to the bath both from the road front and from what seems to have been a more private paved Court to the South. Its roof, like that of the adjoining Pavilion, probably supported a room above, fitting on to the upper floor system of the part of the building that stood on the terrace level, and which would have opened on the finely cemented roof-flat of the single story above the basements. (See Restored View, Fig. 55.)

Room of Clay Bath-tubs, and Indications of Hot-water Supply.

Chamber with clay bath-tubs.

Immediately West of this the line of façade takes a slight inward bend, and a doorway from the yard on this section gives access to a somewhat irregularly disposed room, about 5 metres wide, the back part of which has

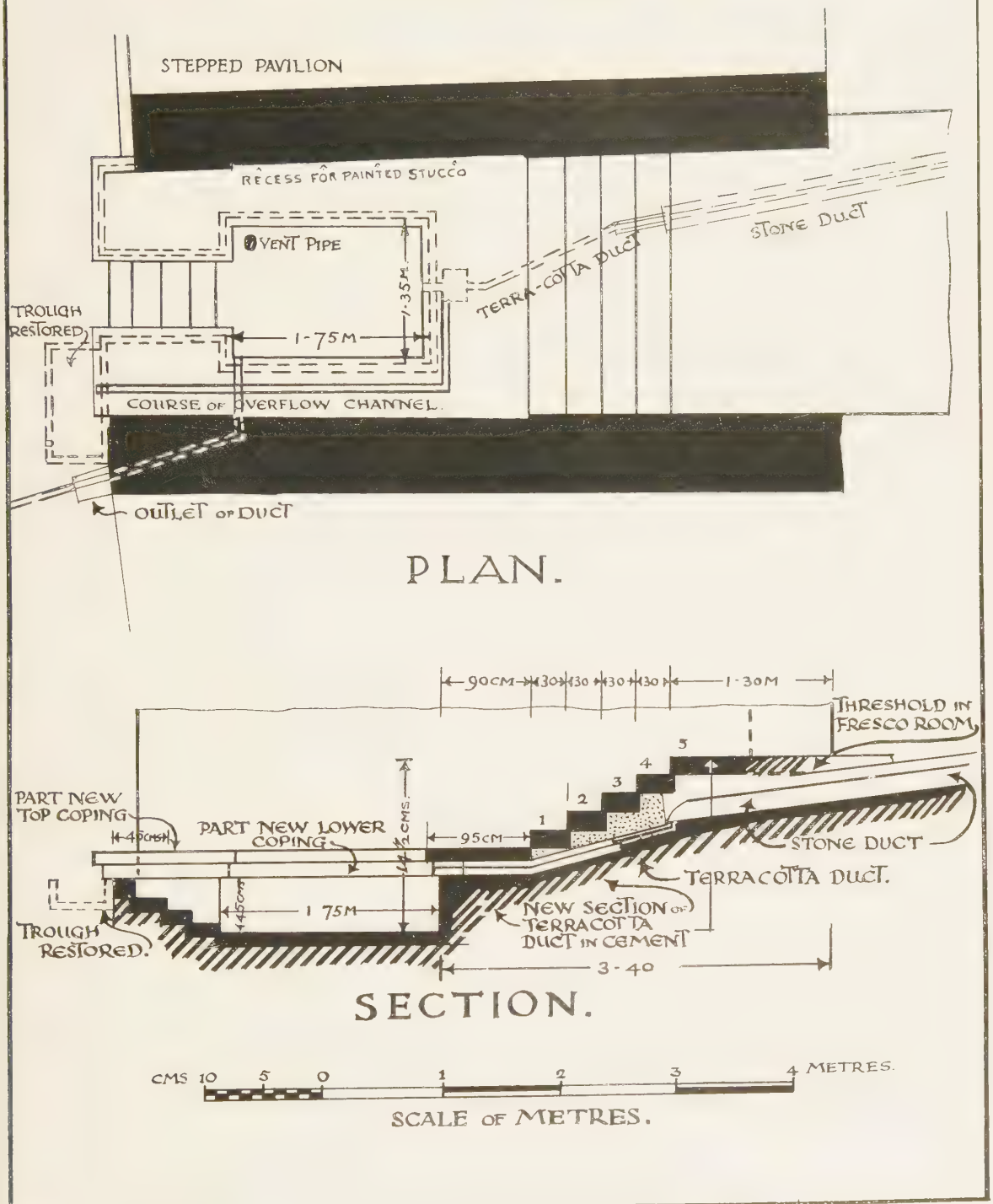


FIG. 57. PLAN AND SECTION OF BATH FOR WASHING FEET.

been much destroyed. Remains of painted clay bath-tubs, found either in the room itself or thrown out on its Northern border, give a clear indication as to its use. While the stone basin in the open hall on its East border served for such more or less public ablutions as washing the feet, privacy was here secured for real 'tubbing' in the clay hip-baths in vogue among the Minoans. Near the centre of the room there came to light fragments of such a bath-tub, one of them, Fig. 58, *b*, presenting a decorative device that recurs on a fragment of one of the large amphoras, Fig. 58, *a*, belonging to the closing epoch of the Palace (L. M. II *b*).[1] Partly in this chamber and partly on its North border were remains of another clay bath with a conventionalized octopus between panels, apparently belonging to the lower borders of the same epoch.[2] It is clear that if, as seems evident, this room was used for these clay hip-baths, some pipe for filling them was close at hand. That this stood in connexion with the West wall is made probable from the fact that beneath the floor of the room is what seems to have been a waste duct, channelled out of a row of well-cut limestone blocks, running with a gradual descent from the foot of the wall on that side, and eventually, it would seem, forming a junction with the duct in connexion with the vent-hole of the neighbouring bath basin. We must therefore suppose that some important water-basin existed in the space West, though the great destruction that has taken place on that side may make it impossible to recover the evidence, and the difficulty of excavation in all this region, owing to the petrifaction of the soil, was extreme.

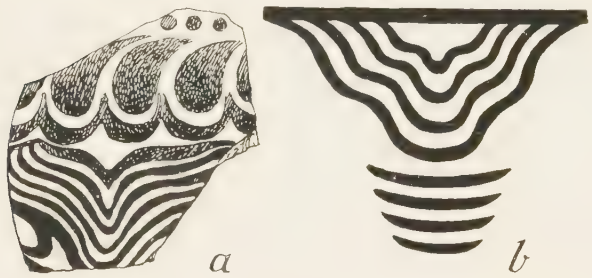


FIG. 58. *a*, L. M. II *b*. AMPHORA FRAGMENT FROM PALACE; *b*, SECTION OF PATTERN ON CLAY BATH-TUB.

Waste duct with carbonized particles.

One quite exceptional feature that was noted in the waste duct or drain on this side was that its interior channel was blackened, as by the passage of carbonized particles in the water. As there was no trace in

[1] The motive occurs beneath a typical foliate band. The design is next to one of the handles. Dr. Mackenzie notes of these that they are 'in a purplish-tinted, warm and thick brown, lack-lustre glaze on a thick, carefully smoothed, pale buff clay slip, which is of a warmer tint inside, on brown clay with many black and brown pounded particles in it'. He also ascribes it to L. M. II *b*.

[2] It shows the 'notched plume' motive on the top of the rim in a triangular form. Dr. Mackenzie observes that the style of this bath is closely connected with L. M. II *b*, though it also shows an approximation to the L. M. III *a* style. The clay and technique closely corresponds with that of the preceding fragments.

the spring water here of any substance like peroxide of iron or manganese that might have produced such an effect, the presumption is almost inevitable that it stood in connexion with some heating apparatus in the area immediately West. If water had been heated there in some such large bronze cauldron as those found at Tylissos,[1] sooty particles from the wood-fire below might easily have settled on its surface and the waste water that found its way into the drain may also have partly washed the blackened exterior of the cauldron itself. It is possible, moreover, that the masses of burnt wood found in the adjoining outside corner by the Spring-Chamber described below may have been originally cleared out of part of this area, though it is also possible that this secluded nook between the two lines of wall had itself been used at a later period for fires to heat bath water in a similar way.[2]

Indications of hot-water supply.

Underground Spring-Chamber.

Beyond the area of the bath-tubs there came to light the façade line of what appeared to be an annex to the main building going off at an obtuse angle. The angle itself, as already mentioned, was filled with masses of carbonized wood, indurated by gypsum infiltrations, and possibly connected with the heating apparatus that, *ex hypothesi*, existed in the adjoining area South. Embedded in this hard charcoaly mass, from a depth of 50 cm. from the surface and going down to a depth of 90 centimetres, lay, heaped together, five steatite lamps of the low-pedestalled class common in deposits of the Later Palace (Fig. 59). Together with these was a veined limestone bowl of the 'birds-nest' shape, and a beautiful fragment of a half-rosette in a ruddy, purplish-tinted stone with borings, showing that it had formed part of a composite decoration of architectonic character. The fine style of the work makes it probable that it belonged to the beginning of first Late Minoan Period.

Spring-chamber.

Pile of steatite lamps.

This, as well as the lamps and stone bowl, seems to have fallen from above, since, below the stratum in which they were found was a chronologically later deposit in which similar fragments of burnt wood were associated with pottery none of which was as early as the latest pure Minoan fabric.

In view of these discoveries, it became necessary to re-examine what

Discovery of chamber.

[1] See below, p. 569, Fig. 365.

[2] It was at first thought that this nook had been used down to the Greek 'Geometrical' period for burnt sacrifices before the holy well-chamber. But the carbonization visible in the case of the olives seen in some of the vessels of offering was certainly due to natural processes.

appeared to be the bare rock surface of the neighbouring terrace level West. This seemed most unpromising, and, even after beginning the work, there was at first no evidence that we had not to deal with the native 'kouskouras' formation, rendered almost as hard as cement by saturation with the gypsum of the waters derived from the hill-side above. Our persistence was, however, rewarded by the emergence, not more than a few inches below the surface, of the upper wall surfaces of a quadrangular chamber.

Had we at last hit on an important tomb? As we hewed out our way downwards a niche appeared in the West wall, which itself at first suggested a miniature 'false door' of the Egyptian sepulchral class. Lower down,

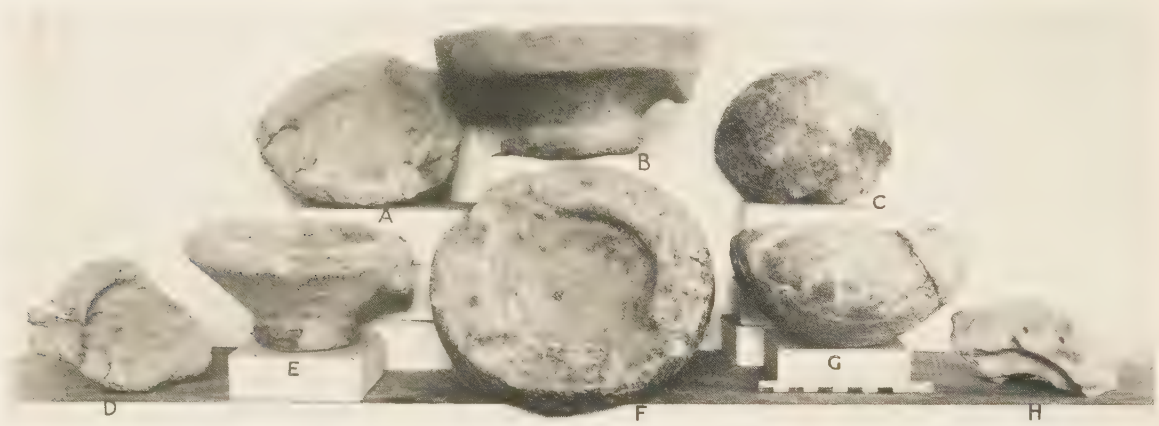


Fig. 59. Stone Lamps and Bowl; Entrance of Spring-Chamber.

however, where the work was somewhat easier owing to the amount of moisture in the soil, the true character of the structure revealed itself. It turned out in fact to be a subterranean Spring-Chamber, with a central basin approached from the front Court of the adjoining building by three descending steps, at the bottom of which to the right was a round socket for a door-post. See Plan and Section, Fig. 60.

Spring-basin beneath petrified surface.

The basin itself, with its overlapping slabs on every side, resembled that of the bath for foot-washing, described above, the depth of the water being, as there, 45 centimetres. In this case, however, the water was not supplied by means of a duct above, but welled naturally from the bosom of the earth, the flooring of gypsum slabs being here replaced by a simple layer of pebbles between which the spring rose. That it had been largely drawn upon for outside use is clear from the fact that the border slab by the entrance had been much worn away in the process of filling water-vessels (see Fig. 61 and Suppl. Pl. XVI). An overflow duct was visible beneath this slab, the

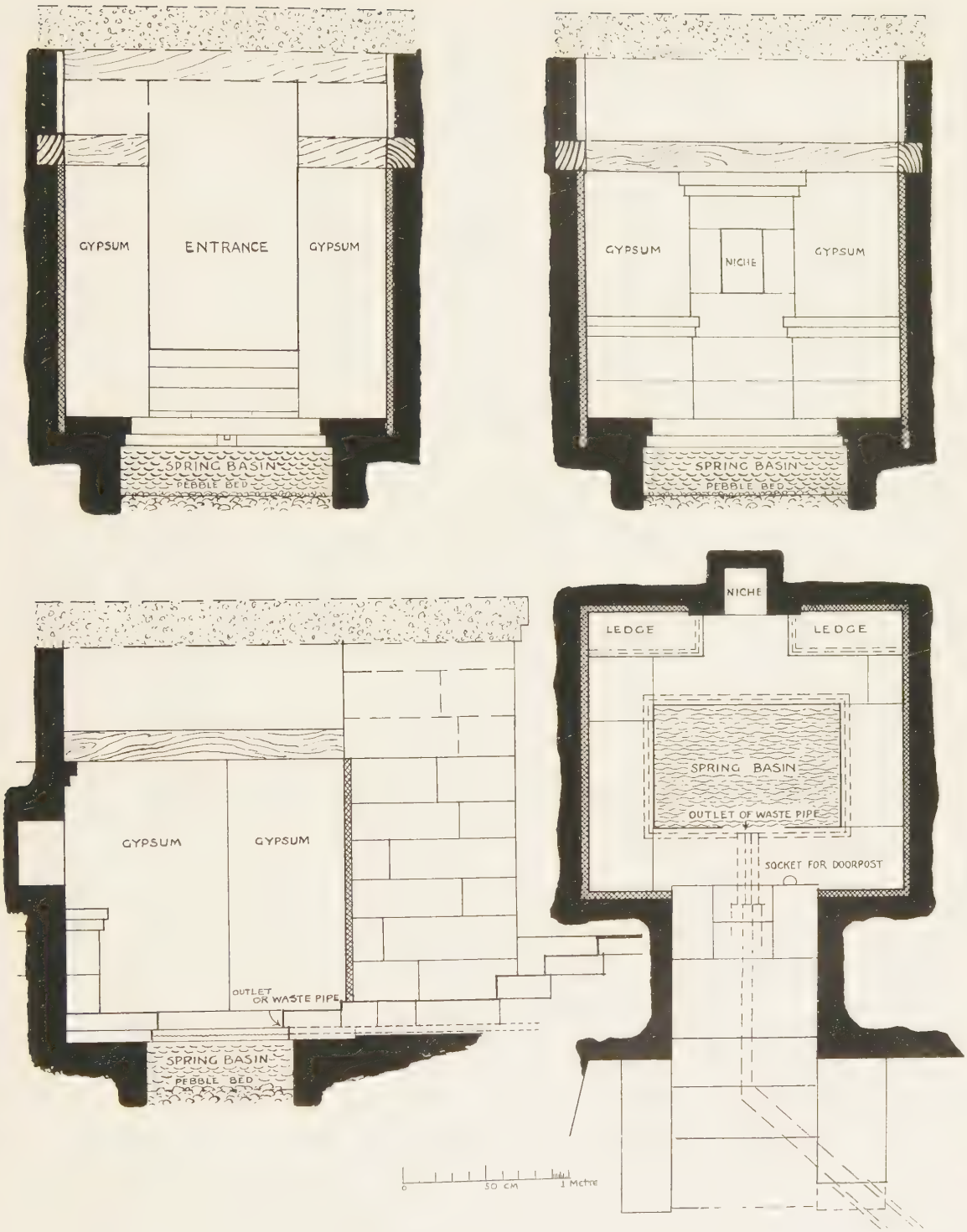


FIG. 60. PLAN AND SECTION OF UNDERGROUND SPRING-CHAMBER.

Course of waste duct.

continuation of which we were able to trace for 8·60 metres, more or less due North, beneath the Court. At that point it took an Easterly turn, and, just where it would have reached the line of the old road, met another overflow

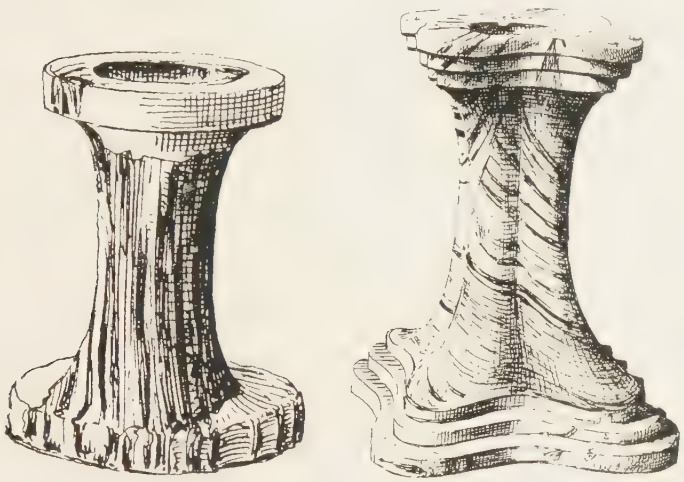
FIG. 61. INTERIOR OF SPRING-CHAMBER SHOWING NICHE AND BASIN, THE NEARER MARGIN OF WHICH IS WORN AWAY BY USE.

drain proceeding from the foot-bath system, their united course evidently continuing beneath the roadway (see Plan, p. 106, Fig. 48).

The little underground chamber which had thus dramatically come to

light beneath the petrified superficial layer proved to be of the most elegant construction. Down to the level of the damper earth, near the basin, it had to be hewn out inch by inch, as a fossil shell is cut out of the rock. The niche in the back wall, which had a square-cut double cornice above its lintel, was probably designed to contain a lamp, and on either side, at a somewhat lower level, were seats or ledges with a similar double coping that may have been also used to set down stone lamps such as those found heaped together just outside the entrance. One of these is set on the ledge in Fig. 61.

Niche for lamp.



a *b*

FIG. 62. STONE CANDLESTICKS: *a*, KNOSSOS; *b*, NAUPLIA.

From a find that seems to stand in relation to this corner of the building it is probable, moreover, that candlesticks were also used here. A somewhat fractured specimen of fine veined limestone (Fig. 62, *a*), showing a fluted stand, was in fact found in association with L. M. I *a* sherds, below the slope, a little to the N.W., near the abutment of the East end of the Viaduct, in a position to which it may well have drifted from the Spring-Chamber itself. This is of interest as representing a more advanced type of candlestick than the Early Minoan and M. M. III examples already illustrated in this work.[1] The earlier type with its expanding receptacle round the socket, recalling an old-fashioned bedroom candlestick, is, as already shown, a derivation of a proto-dynastic Egyptian form,[2] and is evidently designed for guttering wicks

Stone candlesticks.

[1] *P. of M.*, i, pp. 578, 579, and Fig. 422.

[2] *Ib.*, p. 578, Fig. 123, *a*, *b*. Two other examples of Fourth Dynasty clay candlesticks (from El Kab) have now been identified by Mr. James P. T. Burchell in *Man*, March 1924, pp. 33–6. He also shows that candlesticks with lighted candles are depicted in a sepulchral record of Teta first King of the Sixth Dynasty, the conventional design of which is in four sections—the bowl, the candle, the flame, and the smoke. The candlesticks found in Tutankhamen's tomb show a bronze socket on a wooden block. Inside the socket was a rod 'to which the candle itself was tied at several points'. Candlesticks made entirely of bronze or copper may well have existed.

like those of tallow candles. But the proportionately taller and more slender form before us recalls rather the silver services of our grandfathers' tables, and was surely intended for a stick of superfine material, such as wax. A pair of very elegant candlesticks of the same class, cut out of brilliantly veined limestone, was found in a Late Minoan tomb at Nauplia (Fig. 62, *b*).[1]

In the water-basin itself occurred a fragment of the grooved rim of a finely cut white marble vessel, the borings of which pointed to the composite construction of the object, and which may have been part of the top of a two-spouted lamp (Fig. 59, H, upper part). It probably formed part of an exceptionally decorative lamp that had been placed in the niche at the back of the Spring-Chamber according to the original arrangement.

Re-use of spring-chamber as shrine after interval of time.

All these relics, connected with the lighting or decoration of the little chamber, may be safely referred to the earlier part of the Late Minoan Age. None of them is probably later than the close of the last Palace epoch (L. M. II *b*), and some of them, indeed, including the structure itself, like that of the building of which it formed an annex, go back to its very beginning. Elsewhere within the area of the building there had been signs of a partial reoccupation in L. M. III *b*, analogous to that of which there are so many evidences in the Palace itself. But the interior of the fountain chamber afforded us a quite novel phenomenon. It proved to be almost chock full, down to the upper level of the basin itself, with what must be regarded as a votive deposit, containing vessels of offering and in some cases their carbonized contents, identical with that found 90 cm. below the surface at the entrance, and belonging to a later Age than that represented by the period of partial reoccupation in the adjoining building. It looks, indeed, as if, from the time when the basin seems to have been choked in the general catastrophe that befell the site at the close of the last Palace Period, the chamber itself had gone out of use for a considerable interval, perhaps approaching a couple of centuries.

Offertory vessels.

From the offertory character of the relics found it is clear that, at a time when the spring-basin itself had been thus largely choked with debris and the chamber itself had ceased to function for more practical purposes, it had taken on the character of a shrine. The best evidence of this was afforded by the discovery, in the upper part of the mud of the basin, of a round hut-shaped urn, through the open door of which was visible a figure of a Goddess (Fig. 63). Her hands are raised in the characteristic attitude to which, as in the case of analogous images of L. M. III *b* date, the Minoan Goddess

Hut-urn with Goddess.

[1] In the Museum at Athens.

is seen in the act of receiving adoration. This attitude, indeed, seems to have been of much earlier religious tradition, since the open palms belonging to a clay figure of this type were found on one of the Late Neolithic house-floors recently excavated beneath the Central Court of the Palace.[1] Except, possibly, for a kind of flat *coiffure*, the Goddess here appears to be unclad, and her body, which is of one piece with the floor of the hut, is cut short a little below her middle. A remarkable feature is the touching up not only of the eyes, lips, and nipples with dark, lack-lustre glaze spots, but the appearance of similar spots on the palms of the hands, possibly intended to represent sacred marks or *stigmata*.[2]

Spots on palms—like *stigmata*.

Fig. 63. Hut-Urn with Figure of Minoan Goddess.

The vessel itself is cylindrical with a low conical roof, and had two upright loop-handles on either side, slightly inclined outwards.[3] The painted decoration, dark brown to black lustreless glaze on a greenish yellow clay-slip, had been much obliterated by

'Sub-Minoan' character of vessel.

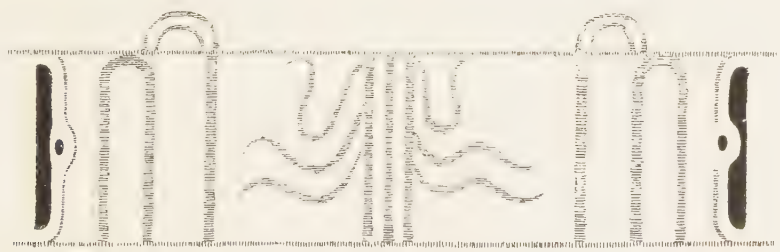


Fig. 64. Development of Hut-Urn showing Painted Decoration.

the gypsum infiltrations. The roof bears traces of a spiral ornament. The development of the design on the walls, as sketched in Fig. 64, shows a panelled arrangement with which are combined tentacle-like scrolls derived

[1] See p. 11, Fig. 3, *aa* 1, 2, and p. 13.

[2] But the dot on the wrist recalls the 'wrist-seals' worn by the Goddess of the Shrine of the Double Axes (p. 340, below).

[3] The figure and roof are hand-moulded, the rest of the vessel being wheel-made.

from decomposed octopus motives of the closing Late Minoan phase. This, in fact, represents the incipient use of the metope, which appears already in ceramic decoration before the close of L. M. III *b*, and is to be distinguished, as Dr. Mackenzie has pointed out, from the fully evolved 'Metope Style' otherwise illustrated by this deposit, which lies still farther away from the true Minoan series. (See Fig. 70.)

The doorway of the little hut, though somewhat broken on one side, clearly shows the ear-shaped projections of the posts on either side, perforated for the bar wherewith to secure the door. The door itself—which would also have been provided with a perforated ear—and the bar, probably a pin of metal, are wanting.

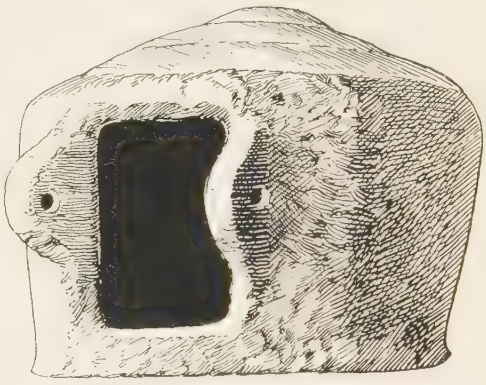


FIG. 65. HUT-URN FROM PHAESTOS.

Similar hut-urn from Phaestos.

A plain hut-urn of very similar form but handle-less and without any figure inside was found by Professor Pernier at Phaestos,[1] and is placed here for comparison in Fig. 65. Its low conical roof shows slightly impressed concentric lines, suggestive of thatching. The door-posts have the same bored, ear-like projections for the bar, though, here too, the door itself was wanting. Stratigraphic details here fail us, but this example must be referred to the same approximate date as that from the Spring House.

Hut-urns of Central Italy compared.

On the other hand it is impossible not to be struck by the singular parallelism between these Cretan hut-urns and those of the Early Iron Age cremation interments of Latium and Etruria, of which specimens are given in the inset below.[2] Not only do we see here the same more or less circular form, but we find an absolute correspondence in the arrangement of the

[1] Mosso, *Escursioni nel Mediterraneo e gli Scavi di Creta* (2nd ed., 1900), p. 122, n. 2, and p. 126, Fig. 67. The height of the urn is 7·3 centimetres. One 'ear' is completed in Fig. 65. For another specimen from Phaestos see below, p. 133, inset.

[2] The examples given in the inset are taken from Montelius, *La Civilisation primitive en Italie*, Italie Centrale, Pl. 140, *a* No. 5, *b* No. 7, *c* No. 10 (Latium).

a *b* *c*

doorway with the ear-like projections of its side posts, perforated for the cross-bar, which in *b* and *c* is actually seen locked in a similar projection of the door itself. It is true that the Italian hut-urns show, especially as regards the roofs, with their timbering at intervals to keep down the thatch and the triangular openings for the escape of smoke at the front and back, a much greater wealth of structural details. The gabled form of roof that they generally affect belongs, too, to a different class (see inset, p. 130, *a*, *b*). Sometimes (*c*), however, we see a kind of pavilion roof of sub-conical shape approaching that of the Cretan specimens. This latter type, with its imitation of wooden posts supporting the eaves, has a particular interest as presenting the closest resemblance to what must have been the prototype of the Temple of Vesta in ancient Rome, with its surrounding columns. Her shrine, indeed, contained within no other personification than the living flame on the hearth.

Temple of Vesta.

Actual remains of hut-circles on the Esquiline and elsewhere attest, as we know, the existence of the round huts that supplied the original of the *Tugurium Faustuli* and the *Casa Romuli* of the Palatine.[1]

Casa Romuli.

In Crete, on the other hand, we have seen that from Late Neolithic times onwards there was a prevailing tradition of rectangular houses, the lower courses of which, at any rate, were of stone. The primitive beehive ossuaries themselves form a special category, fitting on, as has been pointed out,[2] to a widespread Libyan type, both of tombs and dwellings. That there also existed in the Island from early times the simple wigwam form of the hut[3] is made probable by a class of intaglios on bead-seals, going back at least to the last Middle Minoan Period, of which examples have been given above,[4] showing what certainly appear to be round hut-like buildings with conical roofs, and also, after the manner of the house of Vesta and the Latial

Evidences of wigwam type in Crete.

[1] Compare Ovid, *Fasti*, iii. 183:

Quae fuerit nostri, si quaeris, regia nati;
adspice de canna straminibusque domum.

So, too (*Fasti*, vi. 261), of the Temple of Vesta:

Quae nunc aere vides stipula tunc tecta videres;
et paries lento vimine textus erat.

The Sanctuary of the Penates in Lavinium, the Curia Saliorum on the Palatine, and the Roman *Capellae* of the Lares are all described as huts (καλιά, καλιάς). Cf. Helbig, *Die Italiker auf der Poebene*, 1879, p. 51.

[2] See above, p. 35 seqq.

[3] Professor Mosso, *op. cit.*, p. 125, excavating at Phaestos at a spot where a bronze tripod cauldron had come to light, found numerous fragments of rough tripod pots of an ordinary Late Minoan class, and 'a hut floor with a large round hearth' ('il fondo di una capanna, con un grande focolare rotondo'). Unfortunately neither the shape nor the size of the hut floor is given, but the Italian expression 'fondo di capanna' and the form of the hearth suggest a round structure.

[4] *P. of M.*, i, p. 674, Figs. 493, 494. It is possible that they were in all cases intended to represent round buildings.

hut-urns, with posts around supporting the eaves. The two-posted specimen reproduced in Fig. 66 presents on either side curving objects that seem to be intended for serpents and is possibly a rustic shrine of the Snake Goddess.[1] Or was the rounded object beneath the eaves in this case her baetylic stone ?[2]

Chronological discrepancy between Cretan and Italian hut-urns.

In spite of the curious correspondence, extending even to details, of the Minoan hut-urns with the Italian group, it would appear safest to regard them as of independent outgrowth from a parallel type of primitive habitations, though they very likely point to a new ethnic intrusion. The urn containing the Goddess shows decorative elements still predominantly dependent on the latest Minoan phase. It can hardly be brought down later than the close of the twelfth century B.C., and is separated thus by over a century from the earliest examples from Latium or Etruria. The geographical areas to which the two groups respectively belong are themselves sufficiently remote, nor have any intermediate connexions come to light. Such an independent development is in fact borne out by the occurrence, within the European area, of another group equally disconnected by time and space from those of Crete or of Early Iron Age Italy. This is the series of hut-shaped cinerary urns found in a region of North Germany[3] chiefly between the Harz and the Elbe, and, indeed, largely corresponding with the Mother-Country of the Anglo-Saxon race. These urns are also of rounded form with gabled roofs and with round doorways, showing a perforated ear-shaped projection on either side, as in the case of the Italic and Cretan examples. Other special forms of round and oval hut-urns have been found in Sweden,[4] where they go back to the Fifth Period of the Scandinavian Bronze

FIG. 66. ROUND HUT WITH SNAKES (?) ON AMYGDALOID BEAD-SEAL.

Northern group, still later.

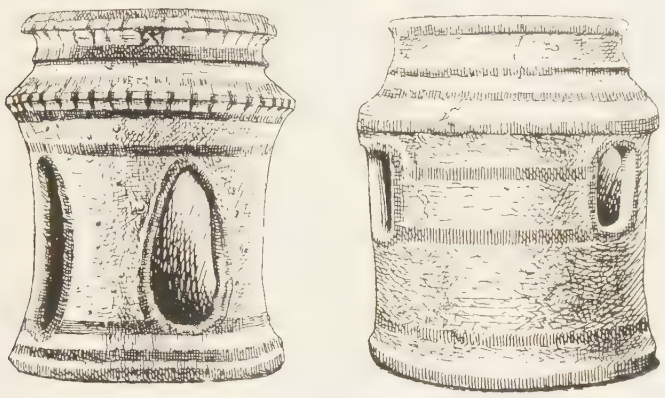
[1] See *P. of M.*, i, p. 675.

[2] This suggestion is due to Monsieur Théophile Homolle.

[3] G. C. F. Lisch, *Mecklenb. Jahrb.*, 1849, 312, &c.; Virchow, *Abh. d. Berliner Acad.*, 1883, p. 985 seqq., and cf. *Z. f. Ethnologie*, 1880, Verh., p. 297 seqq. The comparatively late Iron Age date of these house-urns is shown by the fact that they are already associated with the T-shaped fibula of the S.E. European province (Waatsch, &c.). They occur sporadically as far as Mecklenburg and Bornholm.

[4] See Dr. C. A. Boethius's article on 'Primitive House Types', *B.S.A.*, xxiv, p. 164 seqq. Hut-urns from Scania and Småland are there illustrated (p. 165, Fig. 1, *a*, *b*). A remarkable hut-urn found by Montelius in a barrow at Hammar in Scania, belonging to his Fifth Bronze Age Period, has painted representations of posts around (*op. cit.*, p. 165, Fig. 1). That from Smälle (*a* in inset) shows a system of fastening the door with a bar passed through

Age. Here again we find exemplified the same system of door-fastening and the smoke-hole at the top of the more or less conical roofs presents the peculiar feature of being provided with a movable cover somewhat resembling the stopper of a bottle, in the hut itself, doubtless, designed for use in times of heavy rain or snow. This, indeed, might explain the peculiar form of the roof in another Cretan hut-urn from Phaestos, shown beside it in the inset below (*b*). But in this case conditions both of space and time make borrowing on the Cretan side out of the question.



a *b*

FIG. 67. CYLINDRICAL SUPPORTS WITH OPENINGS.

Cylindrical stands with triple openings.

The Goddess in her hut-shaped tabernacle may be regarded as one of the earliest of the relics that mark the period when the chamber had become the goal of votaries. With it may be grouped another somewhat parallel type of vessel of cylindrical form with three openings—in this case, windows rather than doors—of which a fragmentary and a nearly perfect specimen were found (Fig. 67, *b*). The fragment shows an interlocking S pattern of Minoan tradition and rounded openings. In the case of the more perfect vessel the latter are oblong, with dark bands enclosing and connecting them like the timbering about Minoan windows. Fig. 67, *a*, from the East Palace slope at Knossos, which supplies the immediate forerunner of these vessels, is a L. M. III *b* specimen, but the prototype goes back to M. M. III. It seems possible that burning charcoal was placed in the lower part of these utensils so as to keep warm the contents of vessels set on their rims. They are often open below.[1] Most remarkable of this open class is a stand from

projecting ears analogous to the Cretan. Both this and the hut-urn from Hammar were provided with the movable lid over the smoke hole described in the text. The urn from Phaestos (Pernier, *Mon. Ant.*, xii, 1902, p. 128, Fig. 55) here referred to is placed beside the Smälie example in the inset (*b*).

[1] Some have broad feet, like one from

a, Sweden. *b*, Phaestos.

Gournià in the form of a round tower.[1] This highly interesting object, here for the first time illustrated on p. 139, Fig. 70 *bis*, shows a double tier of four windows divided internally by columns, while its exterior upper margin is surmounted by sacral horns, alternately black and white, and indicative of a religious use. Its painted decoration is typical of the close of L. M. II. A connexion with this may be traced in the windowed bronze shrine from Cyprus with the female votaries looking out as from a Minoan Palace shrine.

FIG. 68. CLAY BOWLS AND INCENSE BURNERS WITH REMAINS OF FOOD-OFFERINGS: OLIVES, ETC.

Bowls with food-offerings.

The fullest evidence of the frequentation of the Spring-Chamber for votive purposes was supplied by the quantities of offertory vessels found either within it or immediately in front of the entrance. Of these, moreover, the class of vessels most abundantly forthcoming supplied the proof of a considerable continuity of Minoan religious tradition. There occurred a series of plain shallow bowls, which, except for their larger size[2] and the flattening and contouring of the upper surface of the rims,[3] resembled the clay cups found in such numbers in Cretan votive deposits from the last Middle Minoan Period onwards (see Fig. 68). Some indeed were no larger. These bowls,

Milato (*Preh. Tombs of Knossos*, p. 96, Fig. 105), supporting large Amphora.

[1] The fragments, found in 1924 by the late Mr. R. B. Seager in a heap of debris, have been skilfully restored by M. Salustros, *formatore* of the Candia Museum. It is reproduced below, p. 139, with the kind permission of the Director, Dr. Xanthudides, from drawings executed for me by Monsieur E. Gilliéron, fils.

[2] E. g. from Aegina. Ἐφ. Ἀρχ., 1895, Pl. X, 10. Fragmentary specimens were also found at Knossos.

[3] The rim diameter was usually from 12 to 19 centimetres, and the height from 5 to 7 cm., though one very small cup was only 3 cm. high.

many of which had been originally heaped together by the doorway of the Chamber, in most cases still held the remains of the original food-offerings in the shape of carbonized olive grains, together with other charcoaly material mixed with grey earth, the process of carbonization itself being doubtless due to chemical action and not to any burning of the contents. The bowls, with their carbonized food-offerings, curiously recalled the use for a similar purpose of the cup-shaped receptacles, out of which they grew, as seen, for instance, in the votive deposits of the upper shrine of the Psychro Cave.[1] When empty the latter were stacked in piles, as were many of those found inside the Spring-Chamber. Carbonized olive grains.

Among the forms of vessels from the contemporary tombs of Karakovilia inserted for comparison in Fig. 70, B 2, there also occurs a pedestalled cup which is the direct derivative of the 'champagne glass' type of Late Minoan times. The painted decoration in this case may be an outgrowth of the octopus design so frequent on the Minoan prototypes.

With the bowls, and serving the same purpose as receptacles of offerings, including the grains of olives, were a few incense burners or *thymiateria* of the usual Minoan type, incurved at the back and provided with a stick handle, Fig. 68.[2] The upper part of the pan of the largest of these was 26·5 centimetres (10½ inches) in diameter. We may, perhaps, infer that some of the pans of this type, of which fragments were found, had been actually used for the burning of incense. Incense burners.

Many of the offertory vessels belonged to a painted class,[3] typical

[1] Many of these cups excavated by me there in 1896 were filled with a similar grey earth containing carbonized particles. The votive cups arranged in regular rows round the pillar of a crypt belonging to a private house explored by Dr. Hogarth on the hill of Gypsádes at Knossos in 1900 were placed bottom upwards over small heaps of grey earth, no doubt representing their original contents. See below, p. 548, Fig. 348.

[2] In the case of these *thymiateria*, also, the upper part of the rim was somewhat flattened, that of the largest, Fig. 68, 15, showing grooves. Dr. Mackenzie notes of the fabric of these vessels that they presented a warm, ruddy buff surface on similar clay, which contained pounded particles, brown and white and black. They were wheel-made and showed string marks on base (cf. *P. of M.*, i, p. 590, Fig. 434, *b*). The offertory bowls of the other class showed the same texture and 'ruddy buff' surface.

[3] Dr. Mackenzie, after a careful study of these vessels, considers that they were of local clay, generally buff brown. They were mostly turned by the wheel, and in several cases showed the mark of the cutting string on the base (see *P. of M.*, i, *loc. cit.*). A few, however, were hand-made, such as Fig. 69, G (though a smaller version of the same type was wheel-made), and the *oinochoê* A. The colouring material was a lack-lustre glaze varying in tone from ruddy brown to purplish black according to the thickness of its application and often much obliterated by the gypsum impregnation of the deposit. This was overlaid on a buff clay slip. Among types not illustrated in Fig. 69 were two small one-handled goblets, their height respectively 7 and 5·7 centi-

Group of vessels with linear decoration.

'Stirrup vase.'

specimens of the best preserved of which are given in Fig. 69. Here we see a simple linear system of decoration consisting of zigzags, upright and diagonal lines, vertical dashes and horizontal bands, and 'ladder' patterns and hatched triangles. Among the types illustrated, the 'Stirrup Vase' (s) shows that Minoan tradition was still alive. This form of vessel indeed persists in Crete for sepulchral use down to a later 'Geometrical' stage. Its false mouth is provided with a conical cap, and this feature, together with similar hatched decorations, recurs on other examples of this type from tombs

Fig. 69. Votive Vessels with Proto-geometric Painted Decoration; Sphinx, etc., from Spring-Chamber.

of the Earliest Iron Age date. It is seen not only at Knossos itself and other Cretan sites, but on the Mainland side, as at Salamis,[1] as well as at Assarlik[2] and at Old Paphos in Cyprus,[3] generally associated with plain semicircular or high-stilted fibulae of types from which the succeeding broad-plated class was evolved. They belong to the earliest Iron Age.

'Basket' type.

Fig. 69, x, the mouth of which is broken away, is clearly derived, as both form and decoration show, from a closed basket with three legs added for stability. This type again may be regarded as of Minoan origin.[4] With

metres, of porous clay, recalling that of the stirrup vase. Fig. 69, p resembles one of these but showed fluted sides. The 'basket' type x has marks of paring below.

[1] S. Wide, *Gräberfunde aus Salamis* (*Ath. Mitth.*, xxxv, 1910), Pls. V and VI, and pp. 17–36.

[2] W. R. Paton, *Excavations in Caria* (*J. H. S.*, viii, p. 74, Fig. 18).

A stirrup vase of this form with the conical cap from Kouklia (Old Paphos) is included by Professor Myres in his *Fabric XII: Native imitations of Mycenaean wares* (*Handbook of the Cesnola Collection*, p. 50 and p. 51, Fig. 412).

[4] A parallel form without the legs occurred in Tomb 5 of the Ismenion at Thebes in company with a characteristic L. M. III *b* amphora (Keramopoullos, Ἀρχ. Δελτ., 1907, p. 97). A contemporary example was found in Tomb 16 of the Kolonakion (*op. cit.*, p. 163).

variations in detail[1] it is a regular feature of Cretan tomb-groups belonging to the 'Sub-Minoan' or 'Proto-geometrical' Period of the Island, as seen at Knossos itself, Kourtes, Karakovilia, and elsewhere. Other types of the present series, such as the small amphoras, the little *oenochoê* with trefoil mouth and

Vessels compared with contemporary

A. SPRING CHAMBER KNOSSOS B. CHAMBER TOMES KARAKOVILIA.

FIG. 70. COMPARATIVE TABLE OF PROTO-GEOMETRICAL TYPES FROM THE SPRING-CHAMBER AND TOMBS AT KARAKOVILIA.

'ladder' pattern, and the shallow two-handled bowls, though not Minoan, recur in the same context. The handle-less bowls R and T are in fact identical, except for their painted decorations, with those of the plain series that contained the remains of the food-offerings. Another common feature in this and other cases is the flattening and contouring of the rims already referred to.

Cretan, &c., tomb groups. 'Sub-Minoan' or Proto-Geometric.

[1] For animal-headed varieties, compare a specimen from Kourtes (*Amer. Arch. Journ.*, 1901, p. 308, Fig. 1) and the painted pottery, parallel with Proto-Corinthian, found by Dr. Doro Levi in tombs of the Cretan Arkadia (*Ill. London News*, Dec. 20, 1924, p. 1200).

Fragments of *kraters* were also found (Fig. 70, A 1–5) with proto-geometric patterns closely resembling those from Karakovilia (Fig. 70, B 3) and Vrokastro, and illustrating the fully developed 'Metope' style. The inset B in Fig. 70 shows various objects for comparison from the contemporary chamber tombs at Karakovilia in East Crete.[1] Amongst these are fibulae of semicircular and 'high-stilted' types that immediately precede the large plated class of the mature Geometrical Period. Iron, it will be seen, is coming in and faïence seals of an imitative late Egyptian class also occurred.

Jar with confronted birds.

Part of the body of a large jar found near the entrance to the Spring-Chamber showed two confronted birds with long legs and with wavy lines apparently falling down from their beaks (Fig. 70, A 1), and recalling a frequently recurring feature on the large plates of fibulae belonging to the somewhat later 'Dipylon' and 'Boeotian' classes, where such lines, which in the case of the birds might be explained as worms, often descend from the mouths of horses. The evidence of this group of votive pottery as a whole points, however, to a phase anterior to the mature Geometrical style of Greece, and can hardly come down later than the approximate date of 1000 B. C. The earliest class of objects such as the hut-urn with the Goddess may, on the other hand, go back to the borders of the twelfth century before our era.

Evidence of cult ceases and chamber closed by natural petrifaction.

With the later term the evidence ceases, and the local cult finally breaks off. Thanks to the infiltrations from the gypsum springs above, the waters of which strayed from their channel in that age of ruin, the contents of the little chamber, though so near the surface, were closed, like fossils in a petrified block, for another three thousand years. The difficult process of clearing out the interior itself restored the structure—so perfectly preserved by this natural action—to its original function as a Spring-Chamber which it had fulfilled before it became a simple sanctuary cell. With the living water once more welling from the basin, and the stone lamps that once lit up the vault replaced on their ledges, this little chamber, sealed up thus by the hand of Nature herself, brings with it a strange revival of the past.[2]

Public character of building.

It is quite possible, though not proven, that from the first this particular spring had been regarded as holy, and that its water, though it actually served for washing the feet and other purposes, may have been thought to confer superadded virtues on those who used it. But the large building itself, of

[1] For the contents of the chamber tombs at Karakovilia near Vrokastro in E. Crete see E. H. Hall, *Excavations in Eastern Crete, Vrokastro*, p. 131 seqq. (Univ. of Pa. publication); for the vases from Kourtes see L. Mariani, *Amer. Arch. Journ.*, 1901, p. 306 seqq., and Plates VIII, IX. For good comparative material see, too, the 'Geometrical' vessels from Knossos (*B. S. A.*, vi, p. 84, Fig. 26, and cf. p. 83, Fig. 25).

[2] I have had the Spring-Chamber roofed over for its better conservation.

which it formed an annex, does not as a whole present a religious character, though a small double-axe stand, derived from the upper story,[1] shows that the devotional needs of the guests were not wholly neglected. The main objects served were clearly utilitarian. Not only the elegant pavilion with its frescoes, suggestive of table delicacies, and the adjoining foot-washing bath and bath-tub chamber, but other salient features bear out this view. The indications of a drinking trough, the corn-bins and stable-like cobbling of the basements, the polished cement floors of the rooms above, so convenient to swab out, are all so many features designed for the convenience of man and beast, and include arrangements in keeping with a modern 'hydro'. The building, indeed, seems to have primarily served as a 'caravanserai' or 'rest-house' for the weary traveller arrived by the Great South Road. It may, indeed, have been a pious foundation, but it differs from any Minoan construction hitherto brought to light in being essentially a public building. Entry to the baths and to the little refectory was not only from within but also straight off the yard, and the yard itself was bordered by the roadway.

Caravanserai or hostel at terminus of S. road.

[1] Built with a 'Geometrical' wall above the floor level of the Room of the Clay Bath-tubs. Of limestone 19 cm. high, with square socket, 13 cm. by 15 cm. (Cf. *P. of M.*, i, p. 547, Fig. 314.)

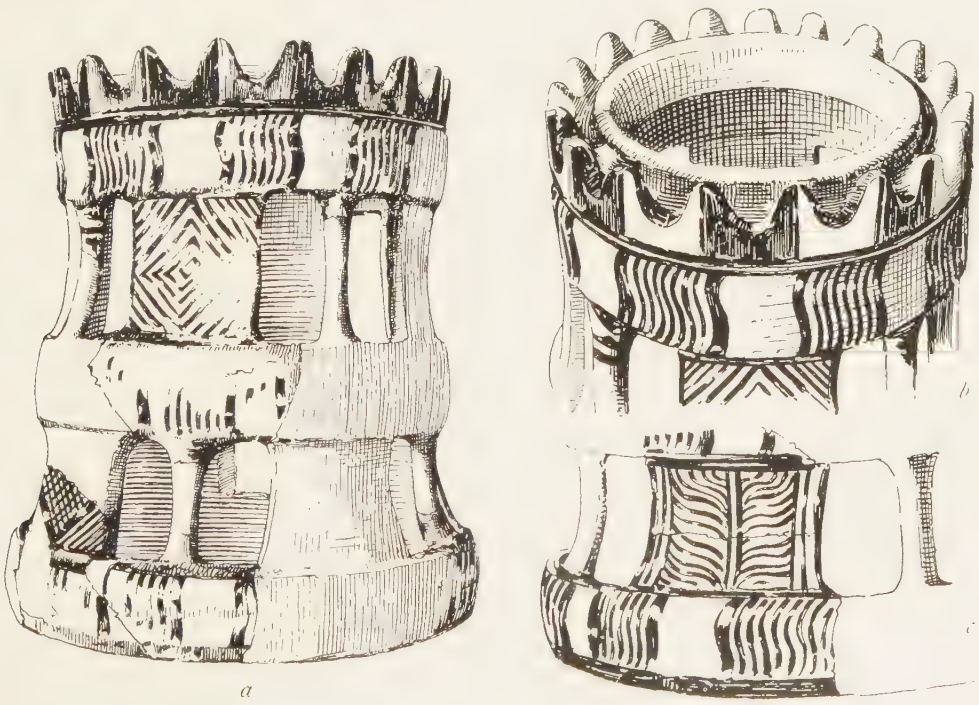


FIG. 70 *bis*. *a*, CLAY STAND IN FORM OF ROUND TOWER FROM GOURNIÀ (SEE P. 134); *b*, WINDOW OPENING; *c*, PART OF LOWER SECTION.

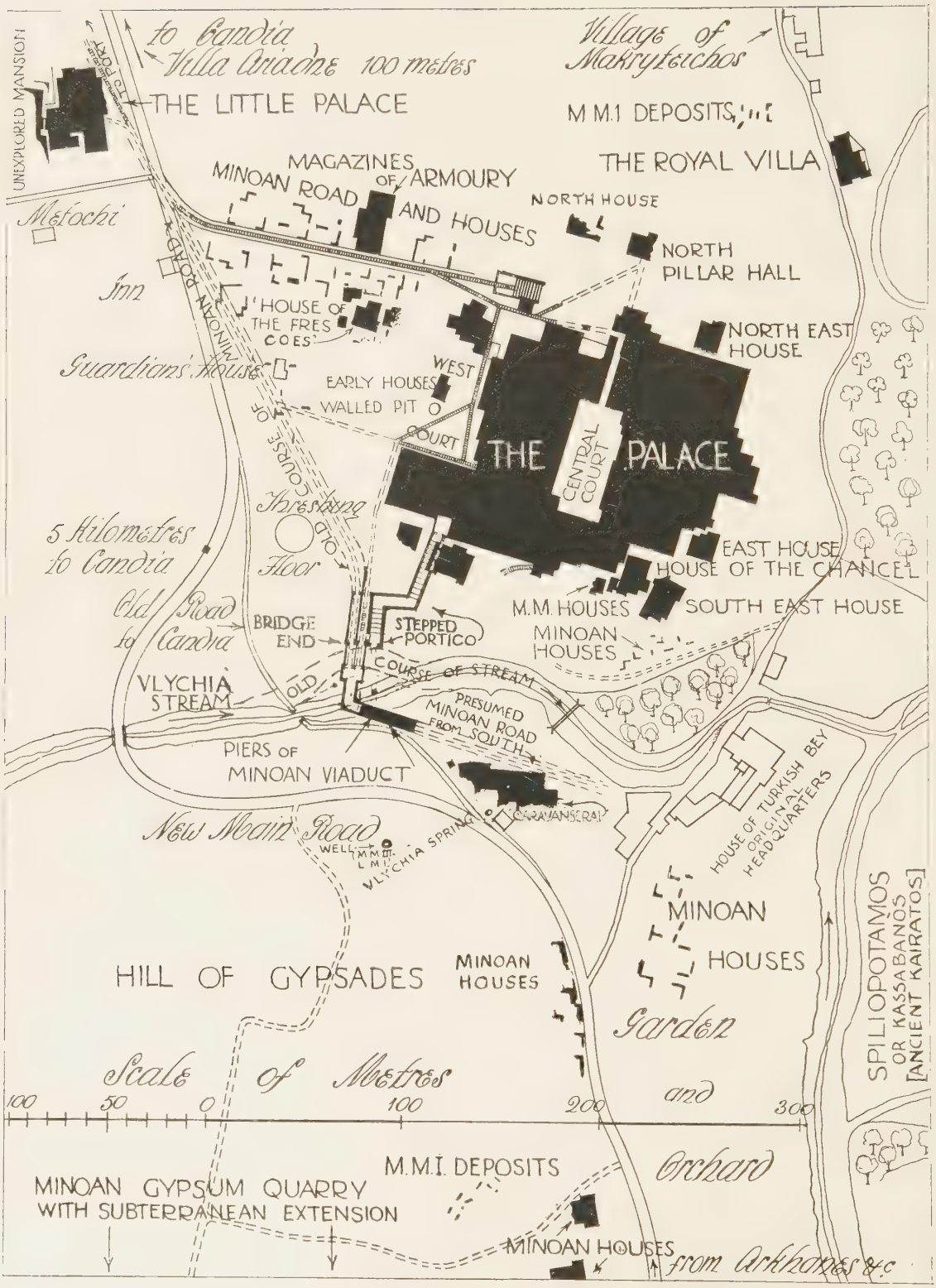


FIG. 71. SKETCH-PLAN OF PALACE AND SURROUNDINGS.

§ 38. The Stepped Portico and South-Western Entrance System of the Palace.

Massive foundations on South Slope; Monumental approach to Palace from Southern Road-head; The Stepped Portico; Evidence of date of Portico—M. M. I a; Its relation to Viaduct; Stone Embankment at Bridge-Head; Road System North of Bridge; Systematic control of through traffic; Public and Palatial lines; Continuation of Minoan Way towards Harbour Town; Columnar Structure by Bridge-Head; Public paved way designed for wheel traffic; Branch line to Magazine of the Arsenal containing the 'Chariot Tablets'; Early use of wheeled Vehicles in Crete—Miniature painted Clay Wagon—M. M. I a; Oxen and Asses precede Horses; Four-wheeled Chariots at Tylissos; The Ass as pack animal; Palanquins—M. M. II model; Restoration of Stepped Portico; Massive stone 'Horn of Consecration'; Fragment of painted plaster relief; Section of Portico approaching an original S.W. Entrance of Palace; Half-rosette reliefs from area of S.W. Entrance Porch; Remains of paved Step-way within Portico; The Great Catastrophe; Uncertainty as to South-West Approach in Late Minoan Palace: Old line of approach deflected; Evidence of intensive use of Southern Transit Route in L. M. I; Early XVIIIth Dynasty Tomb paintings paralleled by great Processional Fresco at Knossos.

Massive Foundations on S. slope.

Already, at an earlier stage of the excavation, remains of a massive line of walling, about 2 metres in width, had come to light, running down a section of the hill-side from a point some 40 metres South-West of the angle on that side of the Southern façade of the Palace. This had been provisionally set down as the foundation of a narrow causeway similar to those on the West side of the Palace, till the discovery during the operations of 1923 of a second line of walling, following the slope upwards parallel with the other at a distance of about 5 metres to the West of it. It was then realized that we had here the lateral supports of a monumental avenue of approach on that side, ascending the slope Northwards and evidently forming some kind of stepped ramp with terraces at intervals.

Monumental approach to Palace from Southern Road-head.

This clearly stood in some relation to a main highway from the South. It was owing, in fact, to the direction in which the descending avenue pointed that the search was made for traces of a road-head on the opposite side of the gully above the Vlychià torrent, which eventually resulted in the discovery of the section of Viaduct on that side.

A better understanding of the parallel lines of structure ascending the

FIG. 72. FOUNDATIONS OF INITIAL SECTION OF STEPPED PORTICO: FROM S.E. ANGLE.

Southern slope was due to the effect of the exceptionally heavy autumn and winter rains of 1923–4. While the Eastern line of walling retained its solid aspect, in the Western line a series of supporting pillars composed of flat limestone blocks made its appearance, stepping up at intervals of about a metre and a half, the intervening portions of which were of rubble masonry (see Fig. 72). The pillars or piers that had unexpectedly emerged could only have been the supports of so many columns, the beams resting on which had belonged to successive sections of an ascending, flat-roofed portico, the inner side of which was formed by the solid East wall.

Piers of Portico.

Fig. 73. Foundation Pillar of Stepped Portico.

These supporting piers, of which there were eight in the section of the Portico first explored, consisted of flat blocks, generally from six to eight in number, piled on one another, the lowermost being socketed in 'cradles' cut out of the 'kouskouras' or of the Neolithic layer that here generally overlay it. Each block had its bedding of clay mortar which was also laid between the lowest block and the soft rock (Fig. 73). The piers themselves at once called to mind similar foundation blocks that had been brought to light in other cases beneath column bases and of which a good instance is supplied by a *loggia* on the North-East of the Palace.[1]

The Stepped Portico.

This outer line of the Portico presents a typical illustration of the economy in constructive effort that so strongly characterizes the Minoan builders. Between the columns where there had been a succession of open balustrades, the need for direct support was clearly less and accordingly the spaces between

[1] See *P. of M.*, i, Suppl. Pl. VIII.

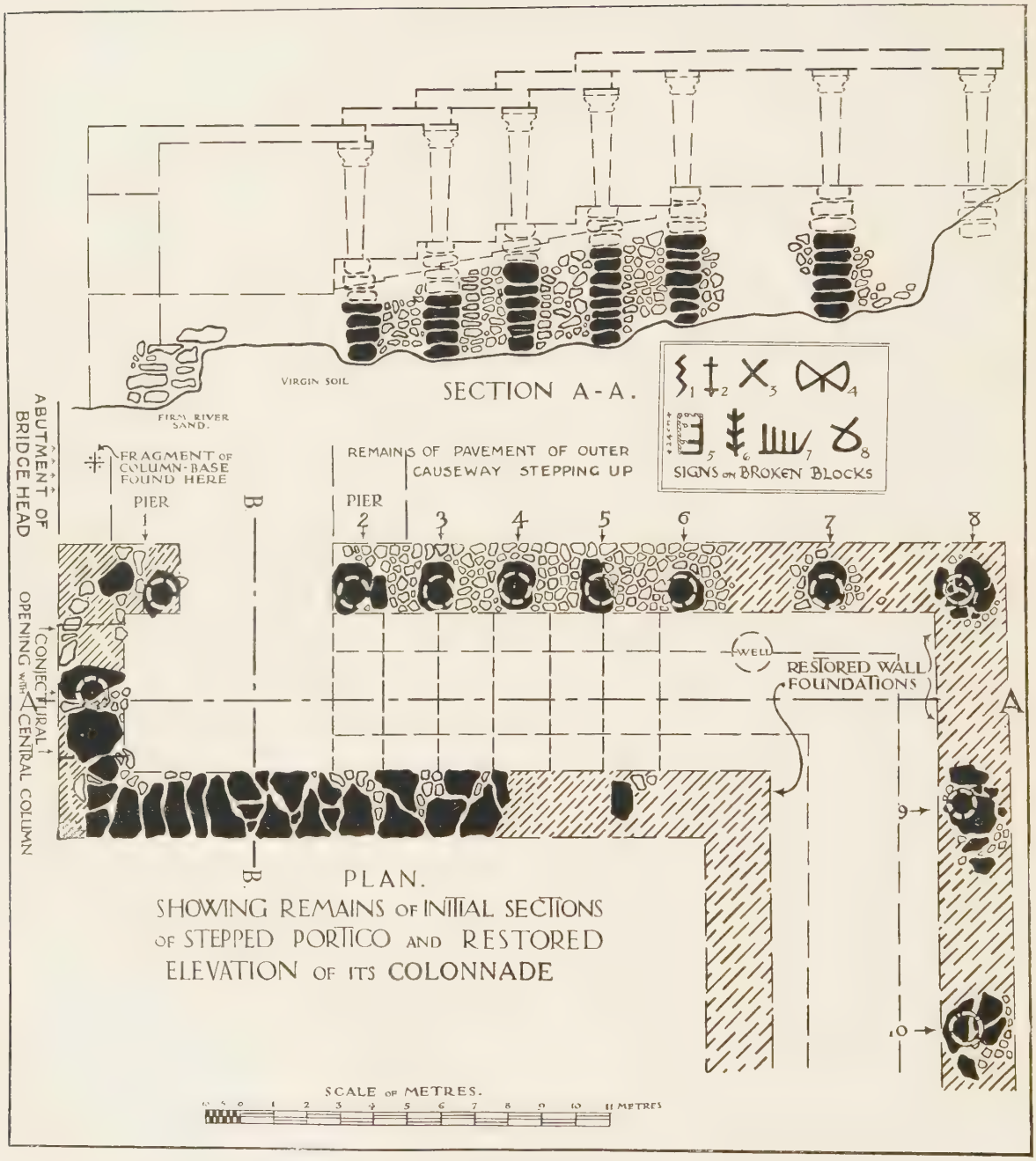


FIG. 74. PLAN AND SECTION OF REMAINS OF INITIAL SECTIONS OF STEPPED PORTICO.

them simply consisted of rubble stones heaped, with an earth packing, into a trench cut through the overlying deposit down to the solid surfaces below. Where, however, the pillars occurred, this solid surface itself, as we have seen, was worked into sockets for their lower slabs (see Figs. 72 and 73 and Section A–A, Fig. 74).

Rising Piers of Colonnade.

This section of the West façade showed eight of these supporting piers, beginning with the Southern *anta* of the opening visible near its lower extremity. As far as the sixth of this series they stepped up in a regular gradation, but piers 6, 7, 8 on this side stood on a terrace level representing a broad landing in what we may suppose to have been the stepped ascent within. At this point it was clear that the Portico had taken a turn at right angles towards the East. On the North side the 'kouskouras' formation rises rather steeply at this point, so that the line of column bases here was only separated in each case by a single foundation block from the rock surface. Counting the North-West Corner base No. 8 on the Plan, there were three columnar supports traceable on this side, the balustrade having been continuous, but facing here North instead of West. The bases here show the wider espacement of three metres. Beyond base 9[1] all traces ceased.

The remains of the solid interior wall do not reach as far as the corner of the Eastward turn on that side, which leaves the exact arrangement a matter of conjecture. The Eastern Section of the Portico had probably the same width, about 5 metres, as the section running South. Very massive cypress-wood beams were required to span this distance of 16 feet, but parallels from the Hall of Double Axes and elsewhere show that the Minoan builders were used to such undertakings and well supplied with the material.

Solid back wall of Portico.

The foundations of the Eastern or back wall of the Portico were largely formed of wedge-shaped blocks 35 to 50 cm. thick, and many of them as much as a metre and a half long. This construction, it will be seen, was very different from the rubble work between the pillars on the other side, the whole of the back wall having been designed for strong support. The cross-wall of the lower terrace was of the same solid construction, and its stones are cemented with a very hard clay mortar. It shows a well-defined rectangle at its Eastern extremity where is a block 2·20 metres long by 45 cm. high, but the internal foundations are curved, thus presenting a kind of inverted parallel to the foundations of the 'Early Keep' to the North of the Palace, which are rounded internally.

[1] Part of this had been somewhat displaced. It was remarkable for presenting an incised double-axe sign of early type (see inset in Plan, Fig. 74).

At the lowest part of this section of the Portico there had been a terrace level about 6 metres wide from South to North with an opening on the West of 4·80 metres, only slightly narrower than the interior width of the building. An *anta*, running out 1·70 m. from the lower cross-wall, would have supported a column answering, on the same level, to the first column of the ascending colonnade.

Evidence of date of Portico: M. M. I *a*.

As to the period to which this monumental work must be referred there is happily some very clear evidence. On blocks of the back wall and the lowest terrace are several incised signs of the same character as those of the Early Palaces of Knossos and Phaestos,[1] amongst them the double axe with somewhat curved edges. (See inset on Plan, Fig. 74.) A still more direct proof, moreover, of the chronological place occupied by the Portico in its original form was supplied by a well beneath the second terrace of the ascending ramp, that had been earthed under in the course of its construction. The upper part of this contained sherds belonging exclusively to the earliest Middle Minoan phase (M. M. I *a*),[2] the remains of which immediately underlie the Palace itself at so many points. This result was corroborated by the fact that, whereas the upper surface of the slope where these remains occurred had for the most part contained post-Minoan and Roman sherds, the deposit below the level of the tops of the foundation walls of the Portico was found all at once to produce in its superficial layers only fragments of M. M. I *a* pattern, while Early Minoan and Neolithic remains underlay this at a lower level.[3]

There is every reason, therefore, for believing that this imposing avenue of approach was planned and constructed at the same time as the great Palace. It formed, indeed, an integral part of it and it has been possible to trace enough of its further upward course to show approximately its actual connexion. (See restored view, Fig. 75.)

What then was its exact relation to the Great South Road that it had obviously been constructed to serve? The first idea that suggested itself to

[1] No. 1, which does not occur among those that have been hitherto recorded, answers to 84 *d* of the Hieroglyphic Class (*Scripta Minoa*, i, p. 211), where it is regarded as a derivative of the 'serpent' sign. No. 7 may connect itself with 116 of the same Class (*op. cit.*, p. 225). The lists of the early Palace signs, both at Knossos and Phaestos, are necessarily very incomplete as they are largely connected with base-blocks beneath upper courses.

[2] At least so far as its upper section was concerned it had been deliberately filled in at the time when the Portico was built.

[3] The Neolithic stratum was about a metre deep. By the first pillar, according to Dr. Mackenzie's observations, there was between this and the top of the pier a deposit 1·45 metres in thickness with a M. M. I *a* layer on the top and intervening strata representing the three Early Minoan Periods.

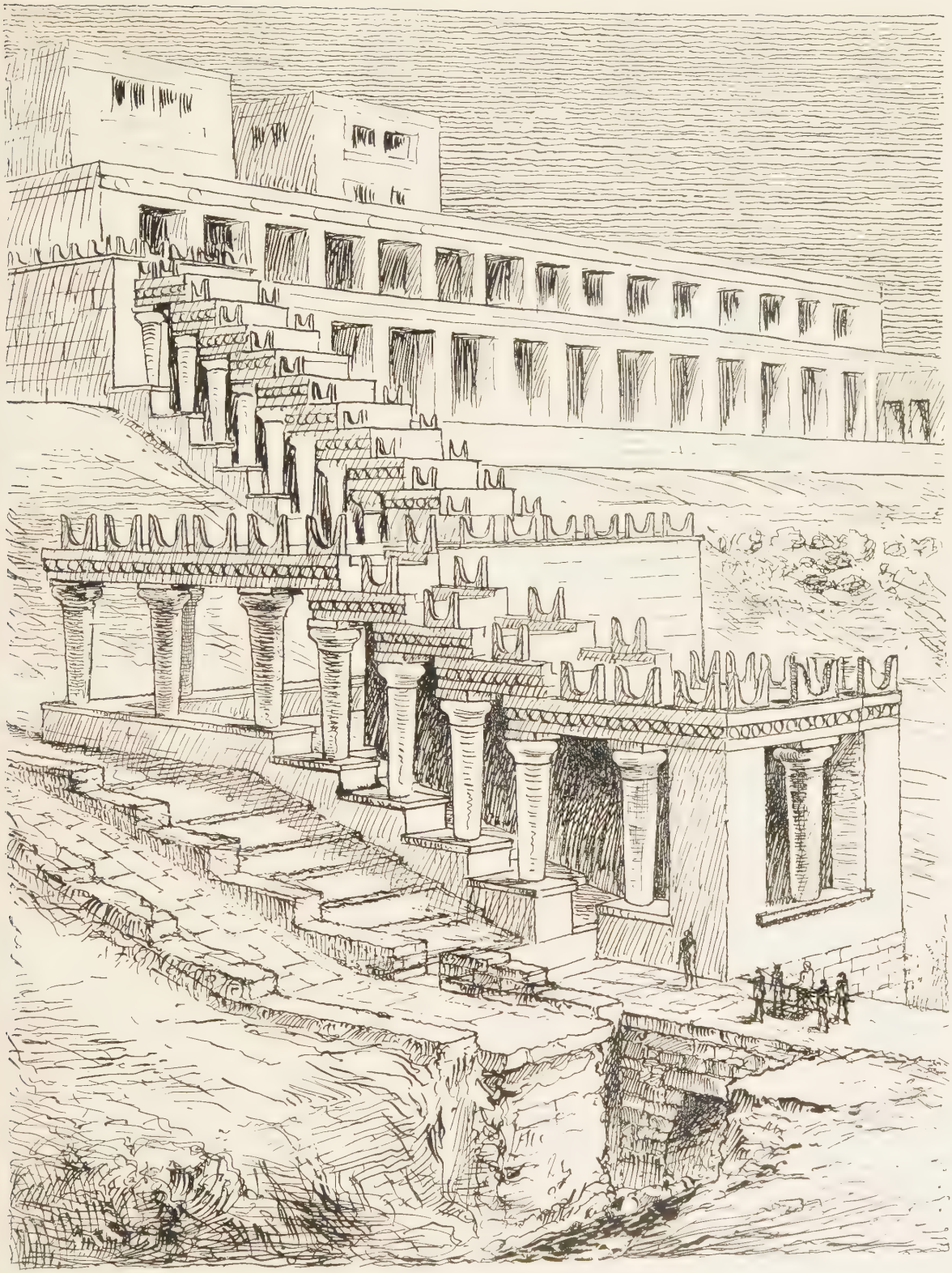


FIG. 75. RESTORED VIEW SHOWING STEPPED PORTICO AND ROAD-HEADS WITH ABUTMENT OF BRIDGE. BY F. G. NEWTON AND THEODORE FYFE.

Relation of Portico to Viaduct.

us had been that the course of its first section, above described, continued straight towards the point where the remains of the Viaduct on the opposite slope cease and where the projection of the rocky steep seems, as noted above, to indicate that this construction took a Northerly turn. But the subsequent discovery that the actual bridge-head on the Northern side of the glen lay immediately beyond the line of the West wall of the Stepped

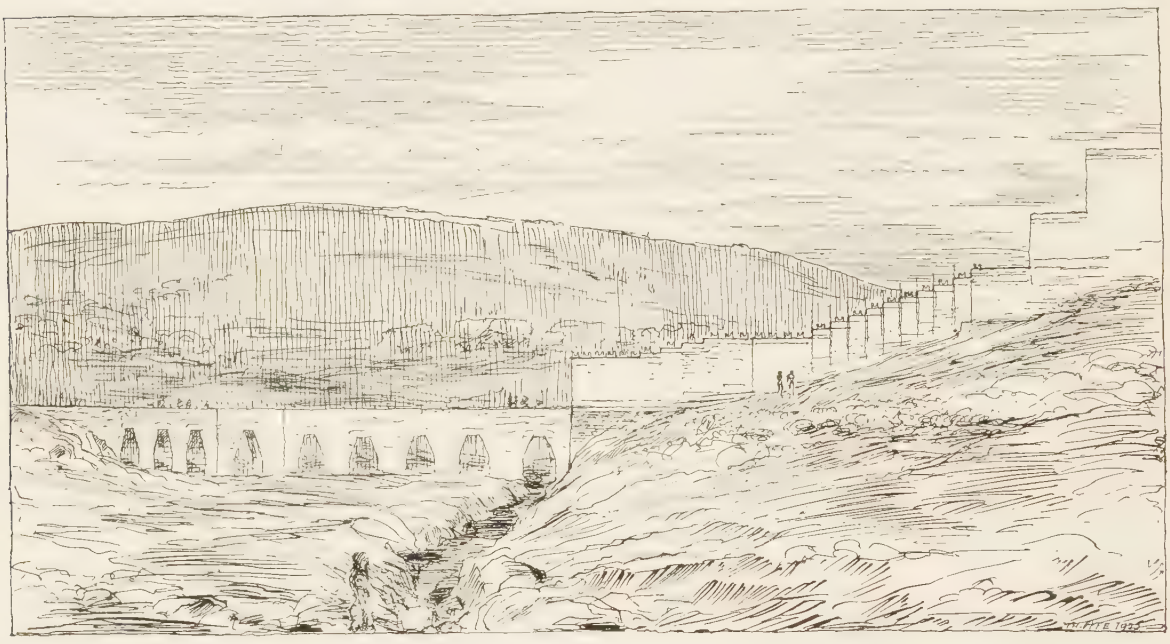


Fig. 76. Restored Sketch of the Viaduct approaching the Bridge-head and Stepped Portico. By Theodore Fyfe.

Portico modifies this conclusion. We must suppose, indeed, that, after a slight turn at the point indicated, the Viaduct made another about 7 metres farther on, and from this point continued in a straight line to the bridge-head. In other words, instead of taking an abrupt turn it changed its course by two moderate angles. A restored sketch, by Mr. Fyfe, of the Viaduct as it approached the bridge-head and the entrance is given in Fig. 76.

The remains of the bridge-head by the South end of the Portico are marked by a massive supporting wall which forms the direct continuation of that which terminates its Southern extremity. The entrance to the Portico, as shown by the actual remains, was by the side opening facing West, where a gap occurs in its foundation walls, and there are no indications of any

opening towards the South. It further appears that the terminal Southern wall, though originally built of large boulders, with a filling of further blocks behind, and sufficiently strong both for its position on the edge of a declivity and for the superstructure that it was called on to support, could not compare in solidity of construction with the section that represents its prolongation West. The wall foundations that mark the Southern end of the Portico go down about 3·35 metres from the level of the top of the first pillar, so far as it is preserved, into a deposit of river-sand, while the foundations in the same line beyond only begin to crop up at that level and go down an unknown depth below it. It seems probable that this terminal line of foundations belonging to the Portico itself supported, above, a balustrade with a single column, in conformity with the other sections of the façade, and the construction has been thus completed in the restored drawing, Fig. 75. The bay or *exedra* formed within by the projection of the Southern entrance pier was well designed to accommodate a bench for those entering or leaving this stately approach to the Palace.

Foundations of Portico and Bridge-Head.

The remains of the massive wall-line that formed the continuation West of that which supported the Southern end of the Portico was entirely covered with disturbed blocks, the leavings—generally too heavy for transport—of later generations of men who had destroyed the superincumbent masonry for building materials. It was only after weeks had been spent in turning over this confused but ponderous pile that we were able to uncover the actual surface of the wall foundations. These, as already mentioned, only became apparent over 3 metres below the level up to which part of the neighbouring Portico was preserved—and began indeed about the point where the other foundations ended. They formed, however, the true continuation of the terminal wall-line of the other structure and corresponded with it in thickness—about 2 metres. As the result of supplementary works, made with a reduced staff after the close of the regular excavations of 1924,[1] they were traced below the point where they made their first appearance for over a metre down, but how far beyond they went down into the river-sand below it was not at the time possible to ascertain with the means left at our disposal.

[1] This supplementary work was carried out under the superintendence of Dr. Mackenzie during August 1924, with the help of our very expert overseer, Ali Aga Baritakis, and a small staff. Further researches made at the same time immediately North of the foundations of the terrace wall also resulted in determining the existence of two lines of wall running up from them in that direction described above (see Plan, Fig. 77) and of the remains of road pavement.

Stone embankment at Bridge-Head.

This very solid section of wall, so deeply grounded and constructed of massive limestone blocks with a rougher backing,—in itself a kind of stone embankment,—had clearly been designed for a very special purpose. That it lay on a line of thoroughfare was shown by the remains of a paved ascending way above. This fact, coupled with the occurrence among the fallen debris with which it was associated of a series of blocks with a bevelled face such as were employed for horizontal arches, left no remaining doubt that this

Abutment of Bridge-Head.

stone embankment had served as the abutment of a Minoan bridge standing in a direct line with the point where the viaduct beyond seems to have taken its final turn Northwards. (See Plan, Fig. 77.)

This involves the conclusion that at any rate the main course of the Vlychià brook had run along the Northern margin of its glen instead of the Southern as at present. As a matter of fact the deep beds of old river-sand in which the foundations of the Southern end of the Portico and of the stone embankment itself are embedded are sufficient proof that in early times the stream—then, no doubt, owing to greater rainfall, less intermittent than now—had here found an earlier channel.

The solid section of embankment wall, with which we are concerned, extends 10·50 metres, or 36 feet, from the corner of the Portico to a point where it entirely breaks off. From its inner border, as shown in the Plan, Fig. 77, almost exactly at its central point, there juts out a short section of another line of wall foundations 1·55 metres wide running North. About 2 metres on, this line is interrupted by an opening the same distance wide for a passage through and, again at 2 metres distance beyond this, the continuation of the wall foundation widens by an abrupt angle on its East face to a thickness of 2·25 metres. The space between this wall and the West façade of the Portico, originally about 4·20 metres, was here, therefore, narrowed to 3·50 metres, and this gives the breadth of a stepped causeway, the first section of which ascended between the wall in question and the rising West façade of the Portico. Some foundation blocks of this paved way and fragments of the actual slabbing that lay above them were found in the space opposite piers 2 and 3 of the Portico. One fragment of the limestone pavement was actually in position, embedded in clay mortar overlying the foundation blocks, which themselves were set in this same mortar.

This was evidently the step-way, for which we had hitherto sought ineffectually, that had brought the main Southern road of approach into connexion with the point on the South-Western border of the West Court of the Palace, to which two converging lines of causeway are seen to run—

one directly from the West Porch, the other diagonally across the paved central area. It seems probable, moreover, as suggested in the Map of the Palace and its surroundings, Fig. 71, that the newly discovered line of paved

Road-System N. of Bridge.

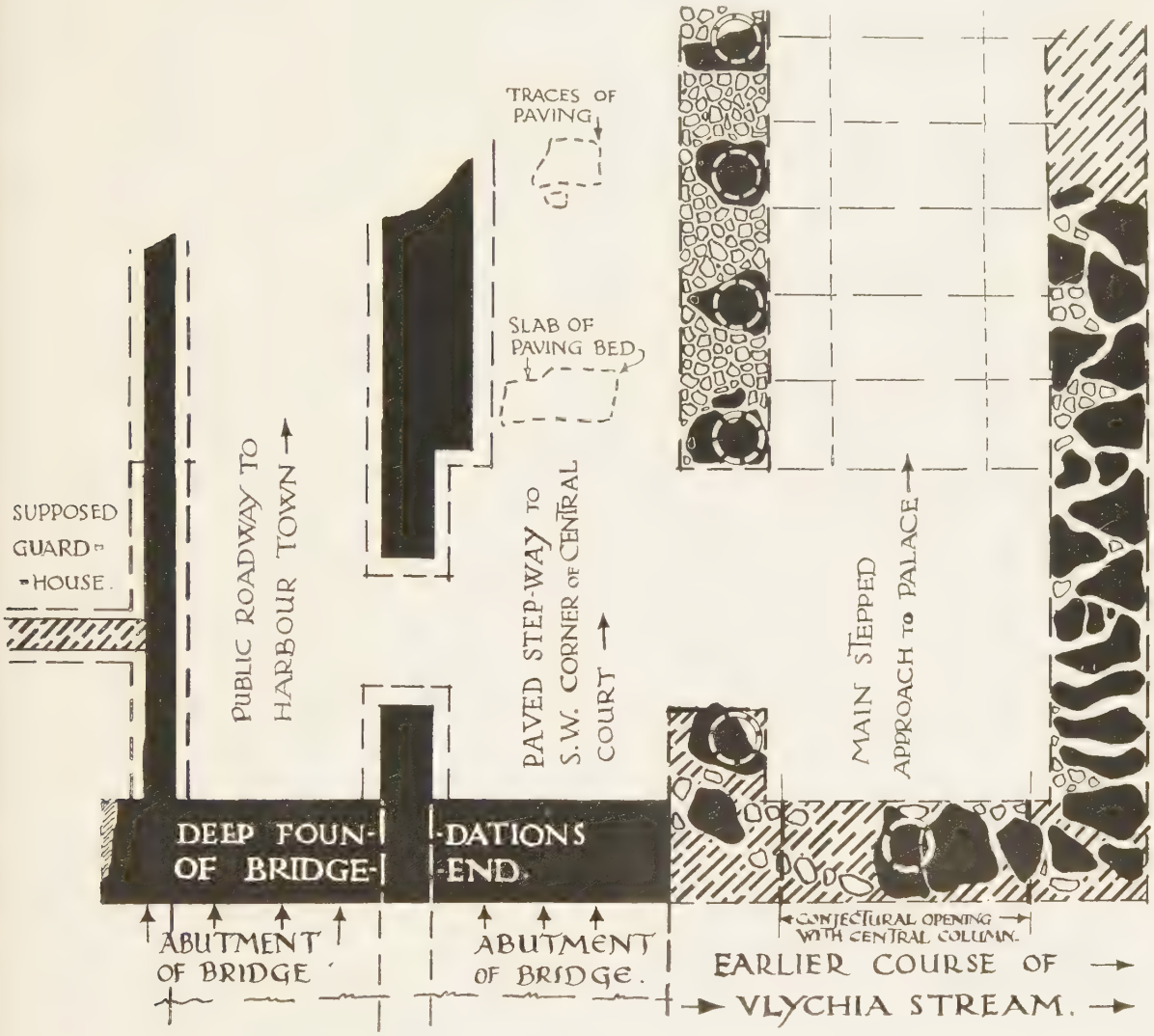

TRACES OF PAVING
SLAB OF PAVING BED
SUPPOSED GUARD-HOUSE.
PUBLIC ROADWAY TO HARBOUR TOWN
PAVED STEP-WAY TO S.W. CORNER OF CENTRAL COURT
MAIN STEPPED APPROACH TO PALACE
DEEP FOUN- DATIONS OF BRIDGE-END.
CONJECTURAL OPENING WITH CENTRAL COLUMN.
ABUTMENT OF BRIDGE
ABUTMENT OF BRIDGE.
EARLIER COURSE OF VLYCHIA STREAM.

Fig. 77. Plan showing Bridge-Head and Initial Course of Roadways and Stepped Portico.

way was prolonged by a slight deflexion to the point where the two causeways, one from the North Quarter of the Palace, the other from the Theatral Area, converge on the paved way leading to the Little Palace, which, as will be shown below, seems to have been a religious annex of the greater

foundation. This useful line of communication with the Southern bridge-head may well at the same time have marked the Western boundary of the West Court.

The wall-line or structural barrier that bounded this step-way on the West seems to have been designed to shut off the purely palatial traffic from that concerned with the outside world. It may well, as shown in the restored sketch, have risen in successive balustrades roughly answering to those of the Stepped Portico that bounded its initial section on the other side.

This structural boundary abuts, as we have seen, directly on the edge of the stone embankment, and, to the West of it, at a distance of about 3·50 metres,[1] another boundary line of masonry, narrower than the central division, again ran up North. This gives a width for the further roadway which we may assume ran up between the two barriers on this side exactly equivalent to that of the more private step-way that flanked it on the East. Communication with this and with the actual entrance of the Stepped Portico beyond was at the same time secured by the 2-metre-wide opening in the dividing structure.

Systematic control of through traffic.

The remains thus brought to light lead to the very interesting conclusion that at this point a complicated and scientific control of the traffic connected with the great highway to the South had been set up by the Lords of the Palace. The purely palatial system of communication was separated by a rigorous administrative barrier from the public thoroughfare.

Public and palatial lines.

The length of the stone embankment from which the two parallel roads ran, divided by the central barrier, was, as we have seen, as much as 36 feet (10·50 metres), and this, it must be admitted, is a great breadth for a Minoan bridge. The culvert-bridges of the viaduct have been estimated to have had a width of between 5 and 6 metres. The great bridge at Mycenae was about 6 metres wide. That both roads abutted on a bridge may be regarded as ascertained and indeed stones cut for horizontal arching occurred all along the section of embankment wall. An alternative supposition is that in place of a single bridge with a structural barrier running along its middle there may have been two parallel bridges answering to the two roadways beyond and divided by a small open interval in the middle. In the restored drawing, Fig. 75, this alternative is preferred.

The separation of the traffic brought to the bridge-head on the South

[1] In this and the preceding space somewhat more than the actual width between the respective foundations is allowed for in the case of the faces of the stone-work that they supported.

bank of the torrent into a palatial and a public channel would have been effected in some guard-station established in a *tête-de-pont* on that side. It is clear that there must have been a broad platform there where the two classes of travellers and the caravans of pack animals were assigned to their proper routes by controlling officials. We may further suppose that tolls were levied, and that there was here something like an *octroi* station such as is known to our Continental neighbours.

Underlying Pottery M. M. I *a*.

It is to be noted that, as in the case of the foundations of the Portico itself, all the pottery that came out in connexion with those of the embankment wall, and of the lines that start at right angles to it, belonged exclusively to M. M. I *a*. Moreover, beneath the pavement level of the road by the lower section of the Portico façade were found considerable remains of *pithoi* belonging unquestionably to the same epoch. It thus appears that all these great works, bridge and bridge-head, paved stepped ways, and intervening barriers, were constructed, like the Stepped Portico itself, at the same time as the great Palace itself, and that all formed an integral part of its system. We further learn from the early well, the evidence of store-rooms, and the abundance of M. M. I *a* pottery that a thickly inhabited quarter of the town already existed at this spot in the beginning of the Middle Minoan Age, at the expense of which a clearing was made for the new works so comprehensively designed. The remains of the lower strata, indeed, show that the human settlement here went back continuously to Neolithic times.

It seems to have been part of the plan of control to keep the initial section of the more public roadway on the left parallel with and contiguous to the reserved palatial line. It is evident, however, that in order to serve its purpose as a link with the urban centre of Knossos and eventually with the Western end of the Harbour Town beyond, in the direction, that is, of the modern Candia, this public thoroughfare must have speedily swerved to the left. On the Map, Fig. 71, the point of divergence is taken to have been level with the North angle of the first section of the Portico. From this point, following the natural line of the slope, the course of the old Minoan Way across the shoulder of the hill inevitably leads us to the turning-point North of the already well-known paved way that led from the 'Theatral Area' to the Little Palace. From this point of junction its course actually corresponds for a short distance with the modern high road to Candia. Outside the North-East angle of the Little Palace, a paved line of road is visible, heading to the North-West, which, though apparently of later work, follows the line of the foregoing sections of the Minoan Way.

Continuation of Minoan Way towards Harbour Town.

It may be assumed that the continuation of this line ran under the olive plantation and vineyard of the Villa Ariadne and another olive-yard beyond, where a 'Geometrical' cemetery exists. This assumption is confirmed by some remains that have recently made their appearance just beyond a little dry watercourse that borders this olive-yard on the North-West. Here by the ruined 'Taverna' of Spanachmet, which contained some Minoan blocks, excavations connected with the widening of the modern road brought out others that made us suspect the former existence of a small bridge.[1] A few metres beyond this, again, the heavy rains of the winter of 1924 actually exposed the edge of what is, beyond all reasonable doubt, the continuation of the Minoan Way.[2] There here appeared a line of rough stones embedded in the usual pale clay mortar that characterizes Minoan road-foundations and distinguishes them from the cobbled surface of the Turkish *kalderims*, which have no such setting. Above this, again, overlaying a stratum 5–7 cm. thick of the same clay mortar were remains of the actual slabbing of the road surface. The whole thickness of the remains was about 30 cm.

Here then we have further evidence of the course of the Minoan harbour road which beyond this spot seems to merge in that of the modern road to Candia, distant about 4 kilometres.

Columnar structure by bridge-head.

It is probable that some guard-room had been built at the point where this harbour road started, as described above, from the bridge-head, so as to facilitate the same official control on the North side of the stream that was *ex hypothesi* secured by a *tête-de-pont* on the Southern bank. Wall remains running out West from the structural barrier of the road on that side may possibly be remains of this. Whether or not fragments of two limestone column bases found near this bridge-head had to do with a covered entrance to the road itself must be left uncertain. One of these that it has been possible to restore is far too small to have belonged to the great Portico itself. Its shaft had a base diameter of about 55 centimetres.[3]

Public paved way designed for wheel traffic.

The public road must have differed from the two inner lines to the Palace itself in one important particular. It stands to reason that it would have been available for wheel traffic, which in the case of four-wheeled ox-wagons, at least, can, as we shall see, be traced in Minoan Crete as far back as the very beginning of the Middle Minoan Age. It could not therefore,

[1] In the bed of the dry channel we found a Roman well.

[2] The true significance of these remains was recognized by our foreman, Ali Aga Baritakis, who knew that the blocks of Turkish *kalderims* had no clay mortar.

[3] The base was 60 cm. in diam. at top.

like the inner palatial approaches, mainly designed for foot passengers and the palanquins of the great, have been a step-way, and in place of alternating flights and terrace-levels, we must here suppose that an effort was made to secure a gradient with an even and not too steep incline.

The section of roadway already noted as being visible immediately beyond the Little Palace, with a central line of pavement and two side wings, gives an idea of the form that it assumed in this urban district. This is still more clearly brought out by the branch road to be described below[1] that starts from the main highway by the Little Palace and runs straight to the 'Theatral Area' of the larger building. This road, though it served as a line of connexion between these two buildings, the former of which was largely concerned with cult, was in fact something more than a *Via Sacra*. It passed along what was clearly a main street in the very heart of the town of Knossos and, what is more, it served the Magazine of the Arsenal, which, as we know from the inscribed tablets found there, was a principal depot of the Royal Chariots. It must, therefore, beyond all doubt, have been used for wheeled vehicles. Here we see the same central line of slabbing 1·40 metres wide and on each side of it a rougher pavement covered with hard cement 1·20 wide, giving a total width of 3·60 metres or almost exactly that of the paved step-way and the public road by the bridge-head. This branch road would have brought wheel traffic of all kinds to the North-West corner of the Palace, and was no doubt the route by which it reached the entrance on that side and the West Porch from the harbour terminus of the main road above described.

Branch line to Arsenal Magazine containing the chariot tablets.

There is, further, a strong presumption that, as suggested in the Map of the Palace and its surroundings, Fig. 71, the line of paved causeway that runs due West from the West Porch along the Southern border of the Court was carried on to the main highway, which it would have met on its way up the gradual slope of the hill. By this branch line public traffic of all kinds coming from the South would have found its most convenient access to the Palace borders. Recent researches have made it clear that the West Entrance, which in Late Minoan times faced North and led into the 'Corridor of the Procession' running South, had in its original plan served a passage, opening directly East into the Palace. It follows from this that it stood in a very convenient relation to the great Magazines on that side, which, according to the later structural arrangements, were so very much secluded.

Early use of wheeled vehicles in Crete: miniature wagon.

Of the character of the vehicles that conveyed various kinds of wares along the main thoroughfare and its local branches in the days when the

[1] See below, p. 572 seqq.

Early Palace first came into existence, we have happily at least one piece of evidence. This is a miniature wagon with painted decoration in the style of the earliest Middle Minoan Period (M. M. I *a*) found at Palaikastro (Fig. 78).[1] The wagon is square-cut, with low sides somewhat resembling a form of railway truck or motor lorry, and with solid, comparatively small, wheels. Its decorative details, notably the beam ends at its extremity and the groups of upright bars along the sides, supply some indications of its structure. This wagon must be referred to a date somewhat anterior to the close of the Third Millennium B.C., and is by far the earliest European example of the kind. There can be little doubt that such wagons were drawn by oxen

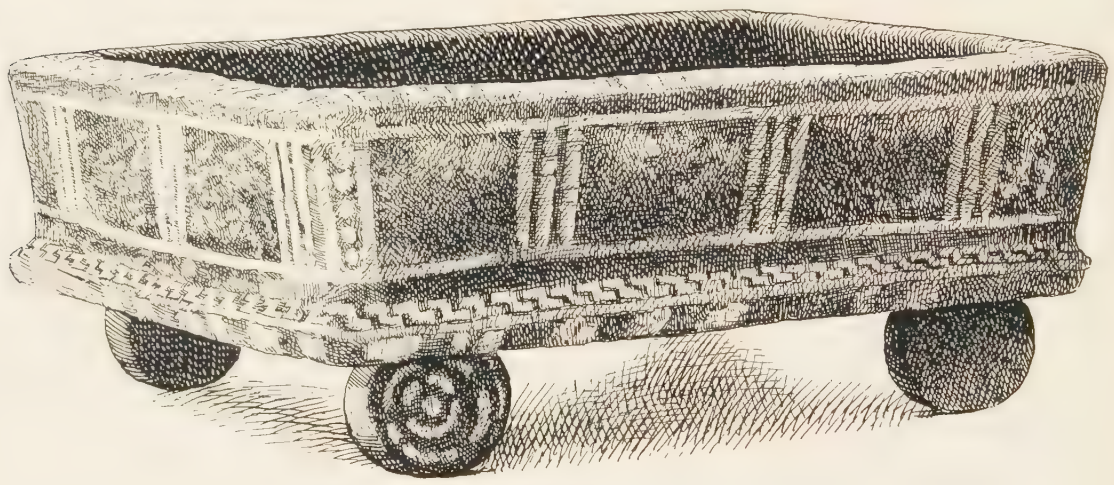


FIG. 78. MINIATURE PAINTED WAGON, M. M. I *a*. PALAIKASTRO.

or, like the early cars of Babylonia, by asses. On an L. M. I tablet from Tylissos [2] with linear script of Class A a four-wheeled chariot for a pair of horses makes its appearance, showing a *châssis* supporting a box-like seat, and with a small four-spoked wheel visible in front and a larger wheel of solid construction behind. From the numerals attached there seem to have been thirty of these vehicles in the service of some local chieftain. In modern Crete, except in the immediate environs of one or two towns, wheeled vehicles were practically unknown up to the time of the road-making era initiated a few years since by Venizelos.

Four-wheeled chariots at Tylissos.

Doubtless most of the transport was carried out by means of pack animals, also oxen and asses. A fresco fragment given below seems to

The ass as a pack animal.

[1] Reproduced with the kind permission of the Committee of the British School at Athens. Cf. *B. S. A.*, Supplementary Paper No. 1, Part I, p. 17, Fig. 12.

[2] See my copy of the tablet in Hadzidakis, Τύλισσος Μινωϊκή, p. 214, Fig. 20.

show an ox's head laden with small elephant tusks.[1] Long, too, before horses or mules were known in the Island the ass must have been made use of as a beast of burden: it is indeed the regular pack animal on early Egyptian monuments. A small vessel in painted terra-cotta found at Phaestos of very late Minoan date is in the form of a donkey carrying what appear to be two large water pots[2] (Fig. 79). Probably a great deal of the traffic, both for wares and for personal conveyance along the Great South Road, was conducted by means of this animal. It may be recalled, indeed, that ages before the introduction of the camel into Egypt[3] or the time when he began to make good his name as 'ship of the desert' in the Libyan wastes, it was the ass on which, from its great powers of endurance, the inhabitants had to rely for distant journeys. Even now this patient animal often fulfils the camel's function, and I have myself seen in the Tripoli market an old man on his donkey, just arrived from the Niger and whose beast had carried him across Sahara.

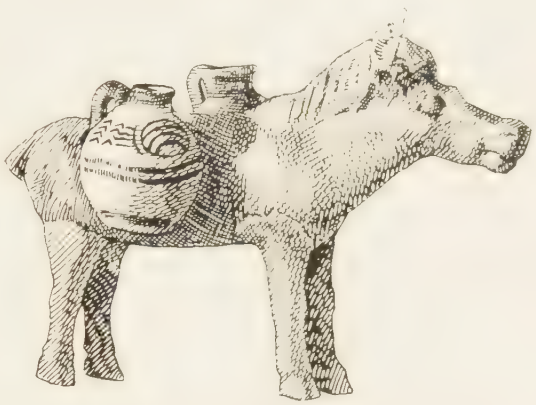


FIG. 79. MINIATURE CLAY FIGURE OF ASS CARRYING WATER-JARS.

It is probable that, as we know to have been the case with priestly personages connected with the Palace itself, well-to-do travellers on the high road and elsewhere made considerable use of palanquins. A very interesting clay model of one of these has been already illustrated as form-

Palanquins: M. M. II model.

[1] See below, p. 742, Fig. 475.

[2] L. Pernier, *Mon. Ant.*, xii, p. 118, Fig. 47. It is described there as a 'horse'; by D. Fimmen (*Die kretisch-mykenische Kultur*, 2nd ed., p. 114) as a 'horse or mule', but the small size of the animal and stiff mane are more characteristic of an ass. The ears of early forms of asses (such as the Tibetan wild ass, for instance) are by no means so prominent as those of the donkeys with which we are familiar. The legs and tail of the figure were broken off. The object itself is a kind of toy vessel—liquid poured into the pots coming out at the animal's nostrils, as in the case of some Minoan 'rhytons'. The decorative design on the jars is late L. M. III *b*. In Fig. 55, p. 117 above, a donkey similarly laden has been introduced as drinking at the trough in the 'Caravanserai' yard.

[3] Except for a somewhat doubtful prehistoric clay figure, there is no evidence of camels in Egypt till Roman times. It was natural, however, for Hebrew writers (Gen. xii. 16; Exod. ix. 3) to credit the Egyptians with their possession.

ing part of the fittings of the Miniature Sanctuary found in the Domestic Quarter.[1] This object, which shows the attachment of a seated figure within, belongs to the Second Middle Minoan Period and is here reproduced (Fig. 80) as giving an idea of the form of palanquin in vogue in the days of the Early Palace. It must, however, be understood that the four projecting poles of the original wooden fabric would have been longer. A Late Minoan fresco from a shrine bordering the South-North Corridor of the Palace, a restoration of which is given below,[2] shows a ceremonial *sedia gestatoria* of more elaborate

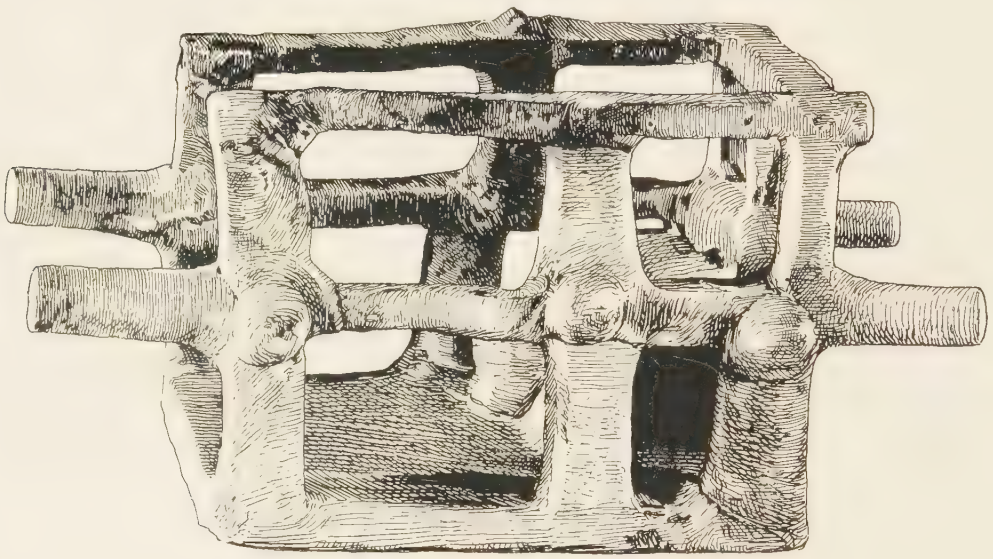


Fig. 80. Palanquin from Miniature Shrine, M. M. III.

form in which a personage, possibly an actual Priest-King, is being borne along by long-robed sacerdotal bearers.

The scientifically devised arrangement of the triple system of thoroughfare at the bridge-head, a plan of which is given in Fig. 76, receives a graphic illustration from the restored drawing, Fig. 75.[3] The stream itself,

[1] *P. of M.*, i, p. 220 and Fig. 166, c.

[2] P. 771 and Fig. 502.

[3] This drawing in its original form is probably the last work of its kind from the capable hands of Mr. F. G. Newton, who had given us his services as architect during part of the last three seasons at Knossos. His premature death, while directing the excavations of the Egypt Exploration Fund at Tell-el-Amarna in December 1924, rendered vain the hope that the modifications and additions necessitated by the latest results of the excavation should be made by his hands. This task has been ably fulfilled by Mr. Theodore Fyfe, F.R.I.B.A., who had already done so much to illustrate the earlier excavations on the site.

the horizontal arch of the bridge, the road and step-ways, the second sheltered by the stately Portico, are here seen in relation to the Palace, the Southern front of which with its two terrace lines rises above on the summit of the slope.

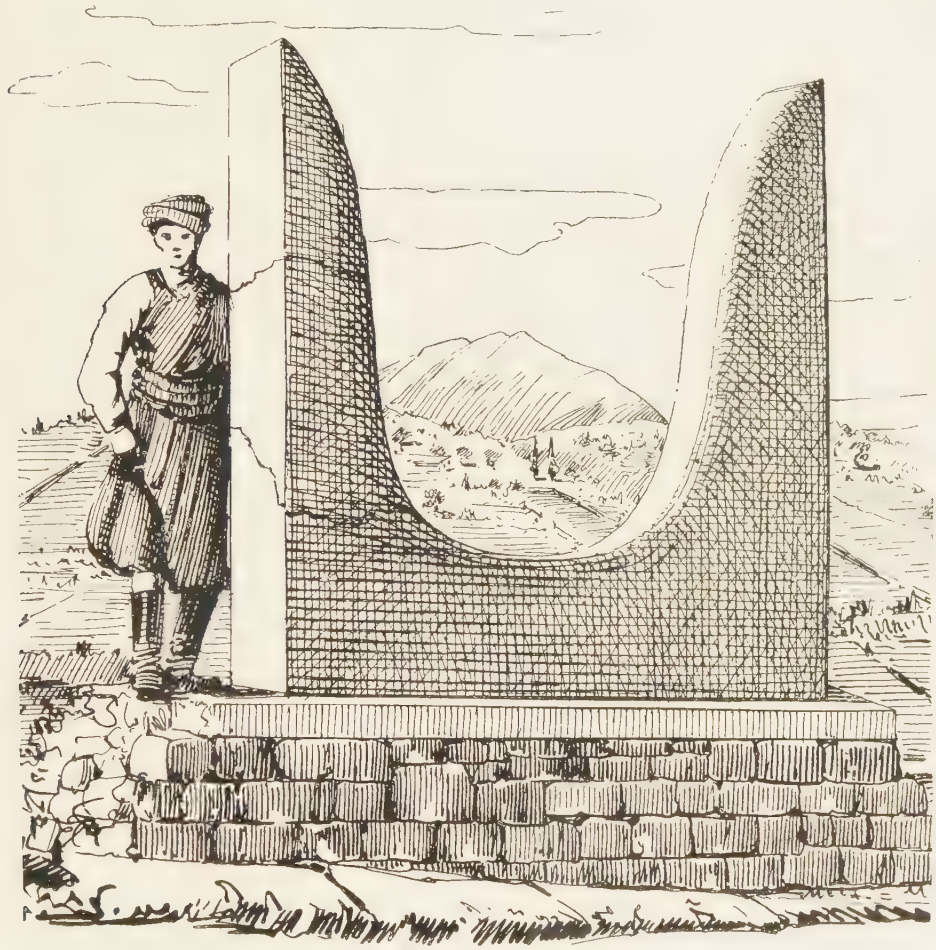


FIG. 81. COLOSSAL STONE 'HORNS OF CONSECRATION' (RESTORED) FROM THE S.W. PALACE AREA. THE RIDGE OF JUKTAS IS SHOWN BETWEEN THE HORNS.

Restoration of Stepped Portico.

The restoration of the rising Colonnade of the entrance Portico with its intervening balustrades is itself dictated by the still existing substructures and the series of supporting piers that they include. The lines of disks introduced into the entablature, as we know from frescoes and other sources such as frequent decorative features in the later Palace, had already taken on their secondary function as only reminiscent of beam ends in Middle

Minoan times. This is well illustrated by the miniature painted shrine and its accessories of M. M. II date[1] where the disks appear in positions which show that they have no constructive value. Finally, the Sacral Horns placed along the top of the low parapets are also a constantly recurring feature in Minoan architectural designs in various materials, notably in the 'Miniature Frescoes'. Part of such a horn in white-faced stucco, originally provided with a clay core, which had fallen from the parapet of a terrace above was actually found on the pavement of the Central Court of the Palace by the borders of the 'Throne Room' system.[2]

There is, moreover, a direct piece of evidence that this consecrating emblem formed part of the interior furniture of what may have been a station for worship incorporated in the uppermost section of this covered approach. Here on the Eastern border of what had been its continuation towards the South-West Palace angle, built into a later wall by the South House, was a rounded limestone block which turned out on examination to be the lower and central part of one of the horns of a massive cult object of this kind which had probably been coated with a layer of painted stucco.[3] This, as restored under Monsieur Gilliéron's superintendence, proves to have been about 2·20 metres high and 2 broad (see Fig. 81). It has been now set up on the roof of the restored West wing of the South Propylaeum. Originally it may well have been associated with a sacral double axe of bronze equalling in scale those found in the sacerdotal storehouse at Niru Khani, one of which was over a metre in width.[4] Such colossal horns could only have stood in connexion with some monumental structure above the spot where this object was discovered, and the appropriateness of such a position over the inner Porch of the 'House of the Double Axes' must at once be recognized.

Remains of massive stone 'Horns of Consecration'.

Of the decoration of the back wall of the Portico, at least in its later phase, we obtain perhaps a hint in a limestone block found by the line of the bridge-head, but which had certainly drifted down from a higher level. The surface of this block has attaching to it a raised patch of plaster which, though very much weathered, has all the appearance of having formed

Fragment of painted plaster relief.

[1] *P. of M.*, i, p. 220, Fig. 166, B.

[2] Owing to its hollow interior it was first taken for part of a pipe.

[3] Remains of a large example of 'Horns of Consecration' found in the East Hall of the Domestic Quarter in association with the High Reliefs was of white-faced stucco with a clay core and, as restored in the Candia Museum, is 70 centimetres in height and 1·25 metres wide

[4] See *P. of M.*, i, p. 436, Fig. 313; since published by Xanthudides, Ἀρχ. Ἐφ., 1922, p. 12, Fig. 10.

part of painted stucco decoration in low relief. Its undulating outline and inner laminations suggest the imitation of alabaster veins on one of the rock-work borders that characterize the last Middle Minoan Period and the succeeding epoch. If so, it possibly belongs to a comprehensive scheme of restoration and concomitant redecoration carried out in M. M. III of which we have evidence in an earlier stratum of the Corridor of the Procession.[1]

Section of Portico approaching S.W. Entrance of Palace.

The Eastward turn of the Stepped Portico was only traceable for a little over 15 metres from the North-Western angle of its first section. Beyond this point Roman building activity had been instrumental in destroying even its foundations, though, curiously enough, just above the point where the last foundation pier of the Portico on that side came to light there had been preserved the stumps of two walls which had served to shelter a remarkable double hoard of bronze vessels.[2] That, in spite of the void beyond, it was possible to determine with sufficient accuracy the line followed by the farther course of the Portico was due to some important remains that came out farther up the slope. Just West of the borders of the South House—a L. M. I intrusion in this area—and only two or three metres from the South-West Palace angle, parts of ascending paving slabs and of their rougher stone foundation below, both set in the usual clay mortar, came to light underneath a later Minoan deposit (see Plan, Fig. 82). These remains of paving were in turn accompanied on their East border by a well-preserved built drain or water conduit of the kind that is characteristic of the Early Palace plan.[3] This drain, which was 43 cm. wide internally and 50 cm. deep, had been purposely blocked at one point, and contained, besides animal bones, quantities of sherds of the same kind as those found in the Temple Repositories and elsewhere, belonging to the closing Middle Minoan phase—M. M. III *b*. We may conclude from this that the catastrophic ruin which, as will be shown below, befell the Palace at that epoch was also fatal to the Stepped Portico, and that the system of approach, which had for its objective the old South-West corner of the Palace at the West end of the South Corridor, was then superseded by some other arrangement. It could not in any case have been otherwise, since this section of the old Corridor was itself cut into in the period immediately succeeding the catastrophe, to make room for the back yard of the newly constructed South House.

We may further gather that the entrance porch at this angle of the

[1] Many burnt fragments of painted stucco decoration were found there in 1923 identical in style and apparently in subject with the 'Ladies in Blue' found by the East Hall of the Palace (see *P. of M.*, i, p. 545 and Fig. 397).

[2] See p. 632, below, and Fig. 395.

[3] See *P. of M.*, i, p. 226, Fig. 171, *a*.

Palace — and indeed the Stepped Portico generally—had undergone a restoration at the epoch succeeding the earlier catastrophe of the close of M. M. II.

Half-rosette reliefs.

It is of great importance to note that in this area and near the upper borders of the adjoining remains of paving slabs there were found, in an unquestionably M. M. III association, fragments of decorative sculpture of the well-known Minoan and Mycenaean class. The finest of these, Fig. 83, *d*, formed part of a rosette band exactly similar to the magnificent relief found in the South Propylaeum,[1] though of slightly lesser dimensions, the rosette as restored having a diameter of 21 cm. as against 26 cm. in the other case. Its cornice and the fragment of another found (Fig. 83, *a*, and Fig. 84, *c*) show the characteristic Minoan outline of a curve

[1] See below, pp. 694, 695 and Figs. 436, 437.

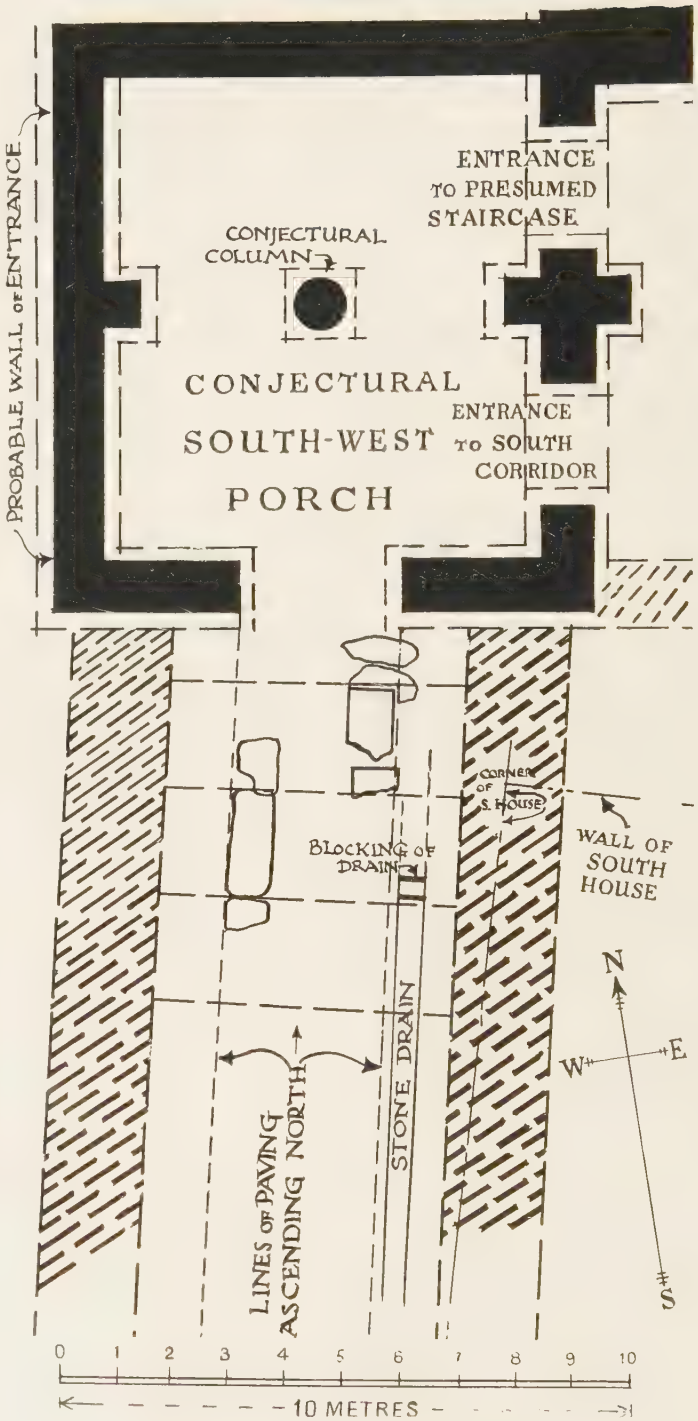


FIG. 82. ABUTMENT OF STEPPED PORTICO ON S.W. PORCH OF PALACE AND CONJECTURAL PLAN OF PORCH.

in relief between two cavetto bands. With these were fragments of the usual panels with half-rosettes enclosing an overlapping tongue (Fig. 83, *f*). These were all executed in a pale grey limestone. Of great significance, too, was

FIG. 83. FRAGMENTS OF BORDER AND ROSETTE AND HALF-ROSETTE RELIEFS FROM AREA OF S.W. ENTRANCE PORCH.

a relief in the same material presenting a spiral issuing from a central boss (Fig. 83, *g*, and Fig. 84 at end of Section) which is exactly reproduced in an apparently identical stone by the spiraliform decoration of the façade of the

Atreus Tomb at Mycenae.[1] The proof thus afforded that these forms of architectonic decoration go back in stone-work well within the limits of M. M. III, repeated in the case of the earlier South Propylaeum, is itself by no means surprising in view of the fact that imitative designs of all these classes appear in painted stucco before the close of that Period.[2] Correspondences like these should give pause to those who, at Mycenae, would bring down identical decorative reliefs to a date some three centuries later.

For the course of the Stepped Portico in its upper section, as it originally existed, the remains of the paving and of the lateral conduit give a true orientation. They show that it started from the Palace in a somewhat slanting direction to the South-West, and the prolongation of the upper border is seen to abut on the second section of the Portico that runs East and West at a point about 4 metres East of pier 10.

Remains of paved step-way within Portico.

The traces left by the section of the Portico near the Palace inform us of the character of its pavement, which in the two lower sections had been wholly removed. Parts of limestone slabs appear on the usual clay bedding, with a slight slope up and, at one point, remains of a shallow step. The upper paving slab here has a notch along its lower end to fit on to the next slab, so as to prevent its slipping down.

The whole was thus a kind of stepped ramp. The existing remains of the pavement belong to a central section 2·87 metres wide, which no doubt was provided with two lateral strips, perhaps constructed in an identical manner, about a metre wide each, thus filling the whole interior space between the two walls. The Eastern of these two side strips would here have been laid over the roof of the conduit described above. The outer walls of the structure had been almost entirely destroyed throughout the upper section of the Portico, but on the edge of the cutting made for the construction of the South House some traces of its massive foundations were visible.

The upper edge of the pavement as it approached the prolongation of the line of the South Corridor of the Palace was cut short, and one of its slabs is seen with a straight edge against a rough foundation block (see Plan, Fig. 82). This may be taken to mark the point where there was a change of system. If we may regard this section of the approach as having been open, the decorative reliefs described above would have belonged to the façade of a portal on this side giving access to a porch beyond. That

[1] See Perrot et Chipiez, *Hist. de l'Art*, vi, p. 626, Fig. 274, and cf. p. 625, Fig. 273; compare F. Noack, *Baukunst des Altertums*, Taf. 15, *a*.

[2] See below, p. 604, and Fig. 387. These decorative reliefs will be more fully illustrated in dealing with remains of the North-West Corner Entrance and with the S. Propylaeum.

from this entrance chamber there was an opening into the South Corridor is shown by a gap that here appears in its foundation walls.

From this point those entering the Palace could have ascended to what later became the 'Corridor of the Procession', and so to the *piano nobile* of the West wing, by a staircase running at right angles, immediately North. Or they could have continued East along the South Corridor itself to the point, near the comparatively unimportant South Porch, whence another staircase, of which we have evidence, led in one direction to the South Propylaeum and to the upper halls of the West Palace Section or, alternatively, by a direct South-North Corridor to be described below, to the Central Court.

The Great Catastrophe: uncertainty as to S.W. approach in Late Minoan Palace.

Neither of these avenues of approach to the South-West Palace angle could have outlasted the Middle Minoan Age, towards the close of which, in consequence of a great catastrophe, the West Section of the old South Corridor was definitely given up and, indeed, cut into for the better accommodation of the South House, now built—we may suppose, for some high official—in this corner of the site.

Old approach from South certainly deflected.

The private building activities that followed immediately on that epoch of ruin embrace the interior of the somewhat isolated South-West Palace Quarter and extended beyond its Western border. A new house must also have obstructed the original course followed by the exterior line of step-way that led from the bridge-head to the West Court of the Palace, following, in its first section, the West wall of the Stepped Portico. We may assume, therefore, that this approach was somewhat deflected to the left of its former direction, though the actual evidence of this is wanting. There is at any rate no room for doubt that the public road, which ran from the bridge-head, somewhat to the left, again, of the exterior step-way, still continued to follow, approximately, its old course. The more gradual ascent of this, obviating the necessity for steps, would have enabled wheel traffic at all times to pass along it. And this, as already noted, could reach the West Entrance of the Palace by a cross-route representing the prolongation of the causeway that runs along the Southern border of the West Court. (See Plan, Fig. 71.)

In any case it is impossible to suppose that the facilities of communication between the abutment of the South Road at the bridge-head and the West Entrance of the Palace suffered any diminution in the most flourishing days of the Late Minoan Age. The renovated West Porch itself had at that time to fulfil functions partly performed in the earlier age of the Palace by the now no longer existing South-West entrance system.

All the evidence at our disposal combines to show that the great transit

Evidence of intensive use of South transit road in L. M. I.

route across the Island was in fact very extensively made use of during the First Late Minoan Period.

From the Southern port of Komò, with its 'Custom-house' containing stores of L. M. I oil-jars, to the important civic settlement of Visala and the road-head itself by the Vlychià terrace, the most abundant deposits of pottery connected with the course of the old built way across the Island that has hitherto come to light belong to this epoch. The ceramic remains, moreover, associated with the Viaduct itself show that at any rate its final phase was coeval with the latest Palace at Knossos.

Early XVIIIth Dynasty tomb paintings paralleled by Processional Fresco at Knossos.

On the other hand evidence forthcoming from the oversea goal of the merchandise that made its way along this Southern transit route greatly confirms the impression of its intensive development at that epoch. The wall-paintings of XVIIIth Dynasty Egyptian tombs, such as those of Sen-mut, User Amon, and Rekhmara, reflect Cretan forms of vessels in metal-work dating from the mature First Late Minoan Period, and about a score of Minoan painted vases found in Egyptian deposits belong to the L. M. I *b* style. Moreover, as will be shown below, the processional figures of the tribute bearers from Keftiu and the 'Isles of the Sea', seen on wall-paintings of the Egyptian viziers, themselves find their counterpart in those of the entrance Corridor of the Palace on the West.

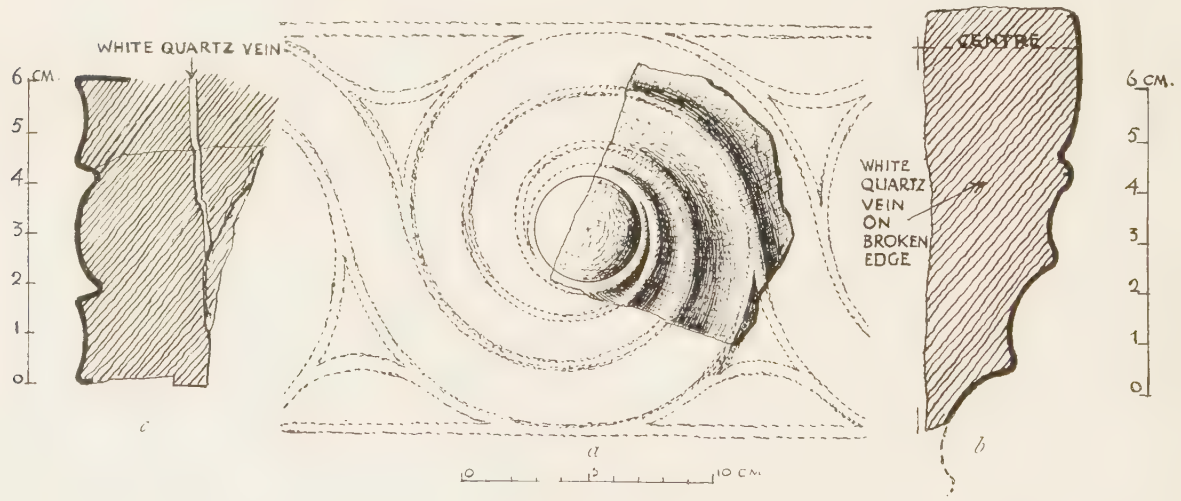


FIG. 84. SPIRAL BAND (*a*, *b*) AND PART OF ROSETTE BORDER (*c*) (RESTORED); FROM THE AREA OF THE SOUTH WEST-ENTRANCE PORCH.

§ 39. The Transit Road in Relation to North and West: Amber Route: Iberic, Britannic, and Maltese Connexions.

The Central Road in relation to Overseas commerce; Ancient Transit Routes; Nauplia to Gulf of Corinth—a further link, seized by Minoans; Maritime connexions with South Italy; Tin routes to the West; The 'Maraviglie'; Irish halberds in Po Valley and in Sixth Shaft Grave, Mycenae; Amber Trade by East Adriatic Coast to Greece and Crete; Minoan influences on Amber Route—Vapheio Cup type imitated in Elbe Valley; Cretan tin supply possibly from Italian side; Did Minoans carry tin to Egypt? Suggestive Eleventh Dynasty Relief; Egyptian tin flask of Aegean type; Was there a direct Iberian route, via Malta? Minoan and Aegean traces in Maltese Megalithic Monuments; Malta on Mediterranean highway; its Monuments advanced examples of a Western Group; Sanctuaries associated with Cult of Dead; Pillar Cult parallel with Minoan; Indications of Chalcolithic context of Maltese Monuments; Maltese curvilinear patterns a secondary stage; Painted decoration of Hal-Saflieni—Minoan prototypes; The 'disk' motive; Miniature Altar-like structure of Minoan class; Incised building with isodomic masonry—its pillared opening; Foliated designs parallel to Minoan; Chronological data—overlying Bronze Age stratum at Hal-Tarxien; Libyan affinities of Maltese Cult; Pillar Trinities; Oracular rites; Connexions of Minoan Religion with Delta Goddess; The Libyan 'Dea Coelestis'.

The Central Transit Route in relation to Overseas Commerce.

The continuation of the Minoan Built Way, of which there are indications somewhat South-East of the Little Palace and again farther North of that point, skirting the modern road to Candia,[1] brings us to another aspect of this Central transit route, as a link between the overseas traffic of the Libyan Sea and that of the Aegean basin. The harbour town of Knossos, moreover, was also, as we shall see, the abutting point of a coastal and overland route from the Easternmost havens of the Island, which brought the great Minoan centre into connexion with an Oriental trade line that followed the Southern coast of Asia Minor from the Syrian ports beyond. This also brought Cretan commerce at the same time into contact with the maritime outlets of the rich ore-bearing Cilician region.

To this tributary route from the East we shall return below, in particular connexion with a series of relics found in or near the harbour town of Knossos and with the clear evidences of Anatolian contact afforded by the early Palace at Mallia, farther along the coast.

[1] See above, p. 153 seqq.

So far as Egypt is concerned, the Central road across the Island cannot only be regarded as a channel by which its products and ideas reached the Aegean shores. It was, during the earlier period at least, in an equal degree the avenue by which commerce from the Cyclades or of the regions East and West of the Aegean that found its way to the port of Knossos was thence transported to the mouths of the Nile.

Ancient Transit Routes.

Transit routes of this kind, linking up sea passages in such a way as to secure at once more direct overseas communication and the avoidance of dangerous headlands, were well known in antiquity. Of such a route a record is preserved in the often quoted passage of Herodotus regarding the mysterious gifts of the Hyperboreans 'wrapped up in wheat straw' that reached Delos from the Adriatic, traversing the country of the Dodonaeans 'first among the Greeks', and thence through the gorges of Pindus to the Aegean shores.[1] Again, on the Italian side, the rapidly accumulated wealth of Sybaris was largely due to the control of the easy land passage to its Tyrrhene port of Laos,[2] so that Etruscan and Ionian wares could be exchanged without rounding the rugged promontories of what is now Calabria.

Nauplia route to Gulf of Corinth —a further link.

Seized by Minoans.

It may be surmised that one of the chief motives that finally led up to the Minoan conquest of a large part of mainland Greece was due to the commercial necessity of controlling the continuation of the through route that led across the Libyan Sea and overland to the port of Knossos from its trans-Aegean point of abutment at Nauplia across the Eastern part of the Morea to the Gulf beyond, with all its facilities for Western navigation. The new lords of Mycenae, indeed, at once took pains to secure this mainland prolongation of the route by means of a built way in all respects modelled on that which already linked Knossos with its haven on the Libyan Sea.[3] From its port by Corinth, moreover, a short sea-passage linked it to what must have been the abutment of a more Northern line leading from near the site of Thisbê to the great Cadmeian centre and beyond. It may indeed be fairly said that in the great days of the Minoan land power a through route ran from the Egyptian to the Boeotian Thebes.

This in itself was an interception of what seems to have been a rival 'Minyan' trade route by which silver bullion from the Troad and beyond, and, with it, the imitative forms of silver vessels, had spread across Central

[1] Herodotus, iv. 33–5.

[2] This was well pointed out by F. Lenormant, *La Grande Grèce*, i, p. 273 seqq.

[3] See above, p. 91 and note. The width of the main lines is marked by the 'Cyclopean' bridge. See p. 92, Fig. 43.

Greece from the Euripus and Malian Gulf up the Kephisos and Spercheios valley, and through a broad tract North of the Gulf of Corinth to the shores of the Ionian Sea.[1] It must have continued to have importance for Mycenaean Greece, though silver imports had reached Crete itself betimes, by a more direct Aegean line, as they did later from the Cilician staples.[2]

Maritime connexions with S. Italy.

More important perhaps from the Minoan point of view was the command of the Western trade-route by which Aegean products, following first the Gulf of Corinth, had early reached the Italian shores.[3] But the materials from this side, such as the liparite of the Aeolian islands, may also have reached Crete by a more direct route across the Ionian Sea. Conversely, as has already been pointed out, a very suggestive record of the intrusion of an Early Minoan form in Central Italy is supplied by the elongated triangular copper dagger with prominent rib found in a Chalcolithic medium in the sepulchral cave of Monte Bradoni, near Volterra,[4] which is of a typical Minoan form, identical in shape with the silver daggers from the primitive beehive ossuary of Kumasa.[5]

The Tin routes to the West.

Of special interest, moreover, in relation to this discovery was the association of conical tin studs or buttons with the characteristic V-shaped

[1] On the Minyan-Troadic relations see E. J. Forsdyke, *J. H. S.*, xxxiv (1914), p. 126 seqq., and compare V. Gordon Childe, *J. H. S.*, xxxv (1915), p. 196 seqq.

[2] *P. of M.*, i, p. 191 seqq. and p. 193, note 1. The remains of ancient workings of argentiferous galena in the mountainous region N.E. of Mt. Ida and the Olympus range make it probable that the Troad itself was also an early source of silver. In the *Iliad*, however, the Halizones mentioned as allies of the Trojans are particularly spoken of (ii. 856, 857) as coming τηλόθεν ἐξ Ἀλύβης, ὅθεν ἀργύρου ἐστὶ γενέθλη. Professor Sayce (Note to T. W. Allen, *Homeric Catalogues*, *J. H. S.*, xxx, p. 315), observes "Αλύβη, or rather Ἀλύβη, corresponds with a Hittite Khaly-wa, "the land of the Halys", just as Ἀρζύβ(η) corresponds with Arzawa'. He connects the Halizones with the Khalitu of a cuneiform inscription of the proto-Armenian King Rusas II (680 B.C.). He considers that the silver may have come from the Taurus, the great Hittite source. Dr. Leaf (*Troy; a Study of Homeric Geography*, p. 290 seqq.) calls attention to the mines of Tripolis (Tireboli, near the mouth of the Kharshont Chai) rediscovered by Hamilton. Marco Polo knew of silver mines near Trebizond. In late Minoan times there was, as we shall see, a direct connexion between Crete and the silver-bearing region of the Cilician borders whence the Hittites also drew their stores.

[3] The most striking evidence of this is supplied by the knobbed bone objects, a specimen of which is reproduced in vol. i, p. 21, Fig. 3.

[4] Colini, *Bull. di Paletn. It.*, xxv (1899), Pl. IV, 3, and pp. 301, 302. See, too, Peet, *The Stone and Bronze Ages in Italy*, p. 195. This elongated triangular type with its four rivet holes and prominent rib is clearly Cretan. It has, however, close Cycladic analogies

[5] See vol. i, pp. 100, 101 and Fig. 71, and now Xanthudides, *Vaulted Tombs of Mesarà* (transl. Droop), p. 47 and Pl. XXIX *b*, Nos. 212, 213.

boring,[1] belonging to a type, known also to exist in jet, amber, bone, and other materials, ranging from Spain and Britain to the Baltic Coast and Bohemia. The fact that these ornaments were in this case of tin, however, may link them up with the Iberic and Britannic family of such objects, and fit in with the evidence of a trade route from the West—the mythical 'Road of Hercules'—that found on one side its continuation along the Ligurian and Etruscan Coast of Italy, and on the other penetrated into the Po Valley. The characteristic mark of this intercourse is the diffusion of the halberd, the blade of which stood out, pickaxe fashion, at right angles to the shaft,—a weapon which in its simplest form, without a definite median rib, first appears in the Chalcolithic deposits of Spain.[2] In its secondary shape, with a rib or accentuated thickening of the blade, it is equally at home in Ireland and North Britain, spreading thence to Scandinavia and North Germany, where specimens with bronze-cased shafts form a prominent feature of the Early Bronze Age.

Diffusion of Iberic and Hibernian halberd types.

Evidences of the diffusion of bronze and copper halberds in this secondary stage of their evolution extend sporadically to the West Coast of Central Italy, to Sicily, though hardly to the Aegean islands,[3] phenomena which help to explain the intrusion in a contrary sense of Minoan dagger types along the Tyrrhene shores.

The 'Maraviglie' of the Col di Tenda.

But the most striking evidence of the penetration of the halberd type concerns North-Western Italy and is supplied by the remarkable figures cut with blunt instruments on the ice-polished schist rocks above the Col di Tenda,[4] which affords the natural passage for the Western trade-route over the

[1] Cf. Peet, *op. cit.*, p. 262, Fig. 147. He cites, p. 263, a similar stud of bone from a rock grave in Sardinia.

[2] E. g. H. et L. Siret, *Les Premiers Âges du Métal dans le Sud-Est de l'Espagne*, Pl. 33, No. 169. The cross graining of the wood shows that this was hafted as a halberd. The centre of the blade is thicker, but there is no distinct rib. It has three rivets, as most of the early examples.

[3] Montelius, *Die Chron. d. ältesten Bronzezeit &c.*, p. 164, refers to a broad-stemmed blade from Amorgos (Blinkenberg, *Mém. de la Soc. R. des Ants. du Nord*, 1896, p. 30) but certainty on this point can hardly be reached.

[4] The first scientific account of the 'Maraviglie' (known as 'Marvels' since the publication of Gioffredo's *Storia delle Alpi Marittime* in 1650) was in a communication of Mr. M. Moggridge, of the Italian Alpine Club, to the Prehistoric Congress at Norwich in 1868, (p. 359 seqq. and with five plates). Many of his copies were taken at a height of over 7,800 feet above sea-level. But the fullest materials are due to the patience and enterprise of Mr. Clarence Bicknell, from 1897 onwards (see *Proc. Soc. Ants.*, 1897, vol. xvii, p. 13 seqq.: *Le Figure incise sulle rocce di Val Fontanalba* (*Atti della Soc. ligustica, &c.*, anno viii, fasc. iv, Genoa, 1898): *The Prehistoric Rock-engravings in the Italian Maritime Alps*, Bordighera, 1902: 'Further Explorations, &c.,' 1903, and especially his *Guide* to the engravings (Bordighera, 1913) containing a summary of the results from the plates of which the specimens of Fig. 85 are taken). See, too,

Ligurian Alps into the Po Valley. Among the many hundreds of designs thus engraved on the rocks—known from them as the 'Maraviglie'—weapons and tools play a large part, and among these the halberd, hafted at right angles on its shaft, greatly predominates. The types represented show both the simple class with two or three rivets and more elaborate specimens with five or more,—the back of the weapon in the first case generally forming

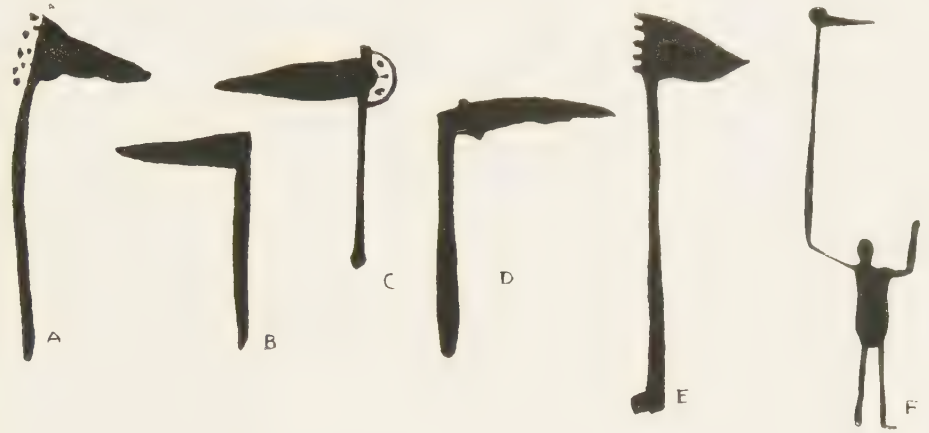


FIG. 85. DESIGNS OF HALBERDS, A–E: AND SIGNALLER, F. CUT ON ROCKS ABOVE THE VAL FONTANALBA, COL DI TENDA.

a semicircle behind the head of the shaft, in the more elaborate specimens running more or less in a line with it (Fig. 85).[1] A form like D might very well represent a highly developed halberd type like those to be described below (Figs. 86, 87). These weapons are often seen in the hands of human figures, who are clearly using them for signalling purposes, much as flags are waved nowadays (e.g. Fig. 85, F).

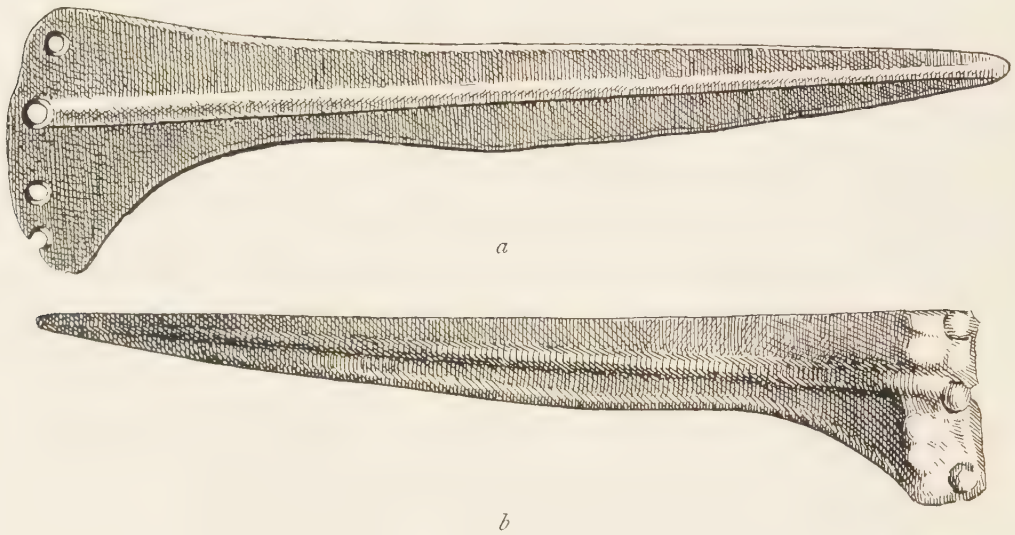
The complement to the halberd signs of the Maraviglie rocks is the

H. Rivière (*Paris Congress of the Association Française*, 1878 (who, with M. de Vesly, took 408 squeezes at an altitude of 2,200 m.), and Prof. A. Issel, *Le Rupi scolpite nelle alte valli delle Alpi Marittime* (*Bull. di Paletn. It.*, 1901); cf. also *ib.*, 1898, p. 265 seqq., and Pl. XXIII. I had myself occasion to visit a related group of these rock sculptures at Orco Feglino above Finalborgo in 1891. In 1897 I drew attention to the importance of the recurring halberd sign in its relation to the Iberic and North-Western Bronze Age group and to an early trade route between the mouth of the Rhone and the Adriatic (*Proc. Soc. Ants.* (1897), p. 16). Many of the sculptures seem to represent bales of merchandise. Bicknell (*Guide, &c.*, p. 39) classifies the subjects as '(1) horned figures, (2) ploughs, (3) weapons and tools, (4) men, (5) huts and properties, (6) skins, (7) geometrical forms, and (8) miscellaneous indeterminable figures'.

[1] The types shown in Fig. 85 are taken from Bicknell, *Guide, &c.*, Pl. XI, 54, (B); Pl. XII, 26, (D); 30, (A); Pl. XIII, 26, (C); and *Further Explorations, &c.*, Pl. II, 2, (E), and Pl. III, 9, (F).

Irish halberds in Po Valley.

sporadic appearance of these weapons in Northern Italy.[1] Of these the most remarkable is a bronze example from Gambara near Brescia [2] (Fig. 86, *b*), with a straight back, curvilinear outline below, and well-marked median rib, which is practically identical with a well-ascertained Irish type representing an advanced stage in the evolution of this weapon (Fig. 86, *a*).[3] But the link



a

b

FIG. 86. BRONZE HALBERDS: *a*, IRELAND; *b*, GAMBARA, NEAR BRESCIA.

Specimen from Sixth Shaft Grave, Mycenae.

thus supplied has a very interesting connexion with the Minoan world, since the type in question is substantially identical with a bronze specimen adorned at the hilt with five rivets, plated with conical gold caps, found in the Sixth Shaft Grave at Mycenae (Fig. 87).[4] The 'centre of gravity' of the contents of this grave belongs incontestably to the Third Middle Minoan Period, and the date of the bronze halberd may with some confidence be given approximately as 1600 B. C.—a valuable chronological datum for the Bronze Age

[1] E. g. a specimen in the British Museum from Calvatone in the province of Cremona. It had three square rivet holes and a well-marked median rib and signs of transverse hafting (Montelius, *Civ. Prim. en Italie Sept.*, Pl. 33, 7). It resembles in character a halberd blade from Montemerano near Saturnia. The heavy fabric and exceptionally solid rivets in both cases look more Irish than Iberic.

[2] Published by Patroni, *Notizie dei Scavi*, 1909, p. 277, who, however, describes it as a dagger ('pugnale'). Though not aware of its true character as a weapon, he, acutely, notes the sympathy in form with 'leaf-shaped' dagger blades from French dolmens.

[3] *Horae Ferales*, Pl. X, 4; another similar Irish specimen from the old Collection is in the British Museum.

[4] The character of this weapon was first recognized by Dr. Hubert Schmidt during a visit to Athens in 1910 (see *Prähistorische Zeitschrift*, iv (1912), p. 35). It is here illustrated for the first time in Fig. 87 from a drawing by Monsieur E. Gilliéron, fils.

of the North-West. The conical caps of the rivets, which, as well as the shape of the blade, distinguish this from all Minoan weapons, are a recurring feature of an extensive North European group extending from Denmark through North Germany as far as Posen and Halle, and —presumably by the Elbe route—even, sporadically, to Hungary.[1] This group, characterized by the bronze casing of the shaft and triple rivets, is, however, eventually dependent on that of the Irish and North British Bronze

FIG. 87. BRONZE HALBERD BLADE WITH GOLD CAPPED RIVETS: FROM SIXTH SHAFT GRAVE, MYCENAE.

province, and the conically capped rivets, and apparently the same tubular casing, also appear in connexion with this more Western family.[2] The gold bosses on the fine imported weapon from the Mycenae tomb are themselves

[1] For materials regarding the distribution of this Northern group see especially Montelius, *Die Chronologie der älteren Bronzezeit*, pp. 82, 83, and H. Schmidt, *Die Bronzefunde von Canena* (*Bez. Halle*), *Präh. Zeitschr.* i (1909), p. 113 seqq. Dr. Schmidt (*op. cit.*, vol. iv, p. 35), though aware of the Irish halberd type shown in *Horae Ferales*, Pl. X, 4 (Fig. 86, *a*, above), inclined to derive the Mycenae halberd from this Northern group. But its shape belongs to a typological stage not reached by those of the Baltic province. Dr. Schmidt is indeed forced to cover the chronological discrepancy by the suggestion (p. 36) that the halberd had been an heirloom of the royal house of Mycenae. I am unable to follow Dr. Schmidt either in this or in deriving the Northern group of halberds from the Iberic, via the Maritime Alps and Northern Italy (*Präh. Zeitschr.*, i, p. 127). The Irish and North British province offers a nearer source and closer parallel.

[2] Wilde, *Cat. of the Royal Irish Academy*, p. 492, Fig. 360, identified the tubular bronze casing of a halberd shaft, similar to those of Denmark and North Germany. It shows the same conical caps. But rivets of this type on the early class of Irish halberds are very rare. They appear on Irish daggers, e. g. a specimen from Ballygawley, Tyrone, in the British Museum. In a less prominent shape they are seen on a halberd in the National Museum of Ireland (Coffey, *The Bronze Age in Ireland*, p. 13, Fig. 7), which W. Bremer, *Die Stellung Irlands in der Europäischen Vor- und Frühgeschichte* (*Festschrift des Central-Museums Mainz*, 1927), regards as a due to reaction. Like the highly specialized form of this class of Irish halberds, they may be taken as a relatively late characteristic. Towards the close of the Bronze Age conical bosses are a prevalent fashion, as in the case of the trumpets and gorgets.

a fitting illustration of the more or less direct connexion, of which it is a token, between prehistoric Greece and what was then the Eldorado of the West.

Amber trade by E. Adriatic Coast.

At the head of the Adriatic, the Eastern border of the North Italian region through which this Westerly trade route ran abuts on the other and better known line of primitive commerce by which the amber of the Elbe mouth and, later, of the Kurisches Haff, reached the Mediterranean basin. The importance of the amber trade that found its way to Greece along the Eastern Coast of the Adriatic is well marked by the great abundance of amber beads, some of them of exceptional size, that occurred in the Third, Fourth, and Fifth Shaft Graves at Mycenae, and above all in the *tholos* tomb A at 'Nestor's Pylos'.[1] The associations here point to the close of the Middle and the beginning of the Late Minoan, and there is evidence that by the same epoch amber ornaments were diffused, though less abundantly, as far as the Southern coast of Crete.[2] Somewhat later they occur in tombs like that of the Double Axes at Knossos[3] belonging to the last Palace Period.

To Greece and Crete.

[1] See Dr. Kurt Müller, *Ath. Mitth.*, xxxiv (1909), p. 278 seqq. and Pl. XV. One bead was as much as 85 mm. in diameter and 21 mm. thick. The largest from the Shaft Graves at Mycenae did not exceed 40 mm. in diameter.

[2] In the course of my explorations of 1894 I was shown part of the contents of a tomb at Amira near Arvi on the S.E. coast containing several amber beads, some of them perforated disks with slightly carinated borders resembling those from Kakovatos, *op. cit.*, Pl. XV. Others were barrel-shaped, somewhat abruptly curved at the centre, approaching in form those from the Tiryns Treasure (Ἀρχ. Δελτ., 1916, Παράρτημα, p. 17, Figs. 3, 4). With these were associated fragments of a bronze sword with a finely executed median 'rib' resembling, in less relief, that of a Shaft Grave sword (Sophus Müller, *Aarböger for Nordisk Oldkyndighet, &c.*, 1882, p. 283, Fig. 4). Together with 'spindle whorls' of steatite and rock crystal there also occurred a series of globular beads of red and yellow carnelian and of amethyst, the latter, at any rate, obvious importations from Egypt of a well-known Middle Empire class. The sepulchral deposit may belong to the early part of L.M. I. A few specimens of the beads, &c., obtained by me (with great difficulty) are in the Ashmolean Museum. With them, apparently belonging to the same context, is a red cornelian lentoid bead with a rude geometrically formed design, possibly of the amuletic class.

[3] A. E., *Tomb of the Double Axes, &c.* (Quaritch, 1914, and *Archaeologia*, vol. lxv), pp. 42–4. An amber disk cased in gold round its edges and about 32 mm. in diameter is shown in Fig. 56, and one of two diskoid beads in Fig. 57. The material, as kindly analysed for me by Prof. Otto Olshausen of Berlin, was—like that of the Mycenae tombs (Schuchhardt, p. 196)—'succinite' or true amber of the Baltic Northern class. As there pointed out, the two resinous fragments found by Dr. Xanthudides in the *tholos* ossuary at Portì in an E.M. III deposit were in all probability not amber (in spite of Mosso's incomplete analysis (*Le Origini della Civiltà Mediterranea*, pp. 291, 292) but resin, such as was used as a deodorizer in the Late Minoan tombs of Knossos. See, too, my remarks, preface to *The Vaulted Tombs of Mesarà* (Xanthudides), p. xii. The Kiev amber has also been shown to be pure 'succinite', but it seems improbable that the Minoan amber can have been derived from the Middle Dniepr.

The operation of this East Adriatic trade route is traceable in many other ways. At Dodona, for instance, which traditionally stands in relation to it, have been discovered Minoan bronze swords representing an outgrowth of the 'horned' form,[1] side by side with a type of perforated axe characteristic of a large Danubian Province,[2] and which in derivative forms can be traced as far afield as Scandinavia. The evidence of this intercourse is indeed still abundant in the 'Sub-Minoan' Age when iron was coming into use, as is well shown by the diffusion of certain fibula types, and it is a noteworthy fact that the characteristic form of the Minoan ring with its besil

Traces of Minoan influence along amber route.

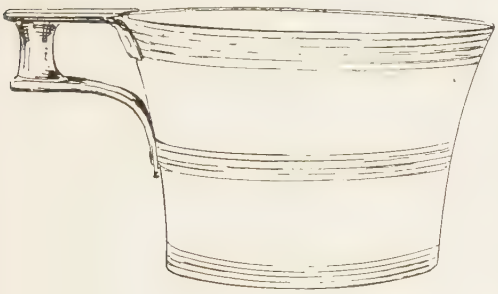


Fig. 88. Silver Cup, Vapheio.

Fig. 89. Clay Cup, Nienhagen, Saxony.

set at right angles to the hoop penetrated as far as Glasinatz in the Bosnian interior.[3] Of special interest, moreover, in connexion with the more Northern section of this route along the Elbe Valley is the recent discovery, in an Early Bronze Age cemetery at Nienhagen in Saxony,[4] of a cup (Fig. 89) which is clearly a clay imitation of the Vapheio type (Fig. 88[5]). A clay handle of the Vapheio class from Knossos has been already represented[6] which bears the mark of its metallic origin in two imitative rivet heads. The handle of the Nienhagen cup is plain and out of position, but, coupled with the shape of the vessel, sufficiently indicates its parentage. The Vapheio type of cup goes back in Crete well into the Third Middle Minoan

[1] Karapanos, *Dodone et ses ruines*, Pl. LVII, 1, 2.

[2] *Op. cit.*, Pl. LIII, 4.

[3] For the ring type and Sub-Minoan influences in Bosnia, &c., see below, p. 197 seqq. and Fig. 108.

[4] *Jahresschrift für die Vorgeschichte der sächsisch-thüringischen Länder*, x, Pl. X, 5, and see H. Motefindt, *ib.*, pp. 77, 78. Unfortunately the exact circumstances of the find are not certain. The cemetery, however, to which this cup belonged was of the 'Aunjetitz' class, so named after the great cemetery south of Prague (see V. Gordon Childe, *Dawn of European Civilization*, p. 191 seqq.).

[5] Silver cup from Vapheio tomb; drawn by Gilliéron, père. Height 85 mm., diam. 118 mm.

[6] *P. of M.*, i, p. 245 and Fig. 183, *b* 1 (opp. p. 242). This specimen probably belongs to the Early phase of M. M. III.

Period,[1] and a fine stone copy found at Knossos[2] is given below, belonging to the beginning of L. M. I. The 'floruit' of this form of vessel may be placed about 1600–1500 B.C.

Cretan tin supply from Italian side.

It is clear that by the closing M. M. III phase and the early part of the Late Minoan Age this East Adriatic trade line was playing an important part, and the appearance in the Sixth Shaft Grave of the bronze halberd with its Far Western associations points, as we have seen, to a linking up of this route with that which reached the Iberic lands West of the Alps by way of the Po Valley. At the same time the other indications above given tend to show that at a somewhat earlier stage, going back at least to the latter part of the Early Minoan Age, the main Western relations of Crete and the Aegean world lay rather in the direction of Southern and Central Italy, of Sicily and the Tyrrhene shores. The discovery in the Monte Bradoni deposit of an Early Minoan dagger blade in association with an ornamental boss of the conical Iberic and Celtic type, made of tin, supplies a strong hint that the influx of this metal, which at that epoch began to transform Aegean metallurgy, came from that side. By the beginning of the Middle Minoan Age the metal implements and weapons begin to contain the full proportion of 10 per cent. tin alloy with copper.

Did Minoans carry tin to Egypt?

It is a noteworthy fact that the first prevalence of true bronze in Egypt at the same epoch coincides with the diffusion there of a curvilinear system of decoration taken over from the Cretan side, and in which, as will be shown, Early Minoan elements were blended with others which had a wider Aegean range.[3] It seems probable that both these contemporary phenomena were due to Minoan agency, facilitated by the transit route across the Island.

Suggestive Eleventh Dynasty relief.

As regards this transit route, it is certainly a suggestive circumstance that an important fragment of an Egyptian sepulchral relief, belonging apparently to the beginning of the Middle Kingdom,[4] anticipates by some five centuries the general features of one of the well-known scenes of the Tomb of Rekhmara in which Minoan representatives are seen bearing ingots as gifts to Pharaoh's vizier. The ingots, which are here borne by the first three

[1] An example occurred in a M. M. III interment (Seager, *Explorations in the Island of Mochlos*, p. 62, XII*f*).

[2] See below, p. 380 and Fig. 212.

[3] See § 40.

[4] The fragment was first published by Dr. W. Max Müller in the first part of his *Egyptological Researches* (Washington, Carnegie Institution, 1906, p. 5 seqq.), who there attributed it to the Sixth Dynasty. In the second volume of the *Researches* (p. 183), however, he inclines to date it to the beginning of the Middle Kingdom. Mr. F. Ll. Griffith writes: 'I am pretty sure this is the real date, very likely as early as Menthotp of the Eleventh Dynasty.'

figures of the relief,[1] are in this case of white metal, apparently tin, instead of bronze, and have the rectangular shape with a perforation at one end of the Early Kingdom in Egypt in place of the later type with incurving sides. Though the facial type is not characteristic and the hair is not distinctively

Tributary tin bearers on XIth Dyn. Monument.

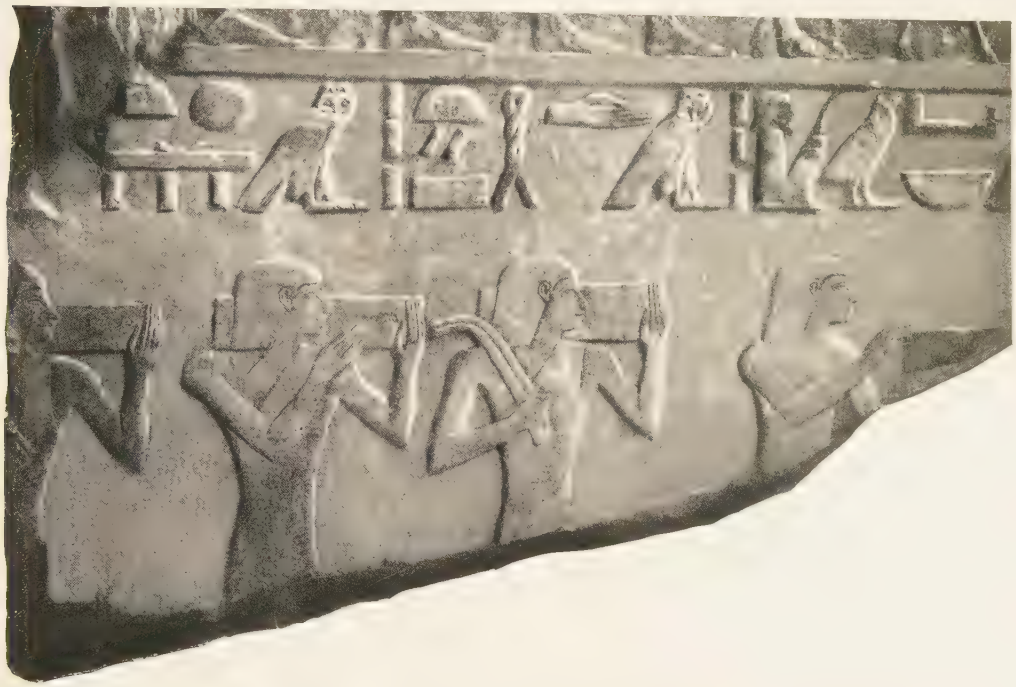


Fig. 90. Egyptian Sepulchral Relief of the Beginning of the Middle Kingdom showing Tributaries bearing Ingots.

Minoan, the pale red of the skin fits in well with such an attribution since this is the conventional 'Aegean' tint, slightly paler than that of the Egyptian,[2] and in contrast to the yellow Asiatics. Moreover, if, as it seems, the metal carried is to be identified with tin,[3] its European source so far as the Mediterranean basin is concerned is generally acknowledged for the earlier period of its use. For these reasons great probability may be thought to attach to

[1] The front figure, whose skin colour is yellow and therefore Asiatic, bears an uncertain sub-triangular object.

[2] W. Max Müller, *op. cit.*, ii, expresses the opinion that the brown-red legs seen in the upper row are those of Bedouin, coloured as in some other cases like Egyptians.

[3] The word *dhty* given in the inscription above (the beginning of which is enigmatic) also includes lead, but as W. Max Müller observes (*op. cit.*, p. 6, note 2), 'it is not very probable that this less esteemed metal is meant in our boastful representation'.

Were the ingot bearers Minoan?

W. Max Müller's suggestion[1] that, in spite of certain hybrid elements[2] in the design, we have here to deal with Minoans. This offertory scene[3] is itself of the greatest interest as supplying an earlier model of the similar groups in tombs like those of Senmut and his successors, of early Eighteenth Dynasty date, and supplies at the same time a prototype of the great processional compositions that seem to have played such an important part in the wall

Fig. 91. 'Pilgrim's Flask' of Tin, Abydos, Egypt.

decoration of the Late Minoan Palace at Knossos. The discovery, to which attention will be called below,[4] of a remarkable terra-cotta relief of a youth in the attitude of the 'cupbearers' of these frescoes in a deposit at Knossos belonging to the close of the Third Middle Minoan Period has now supplied an earlier proof of the reaction on Minoan art of Egyptian prototypes like that of the above sepulchral relief.

It is noteworthy that the most curious by-product of the tin-trade of Ancient Egypt that has come to light is a 'pilgrim's flask' entirely of that

[1] *Op. cit.*, i, p. 5 seqq.

[2] E. g. the linen garments 'covering the left shoulder and leaving the right one exposed', which recur in the case of Asiatic figures. The throwing-sticks held by them were common to the Aegean peoples as well as to Asiatics, witness those engraved on the background of the design on the conical silver rhyton from the Fourth Mycenae Shaft Grave.

[3] The foremost of the youths bears a curious object, perhaps of the same material as the ingots, which somewhat resembles a truncated prow of a vessel. It may have had some votive significance, but it is clear that it must have been of intrinsic value.

[4] See p. 753 and Fig. 487.

Egyptian tin flask of Aegean type.

metal found in an early Eighteenth Dynasty interment at Abydos,[1] and now in the Ashmolean Museum at Oxford (Fig. 91). This form of vessel, which appears for the first time in Egypt at that date, and is fairly common in clay,[2] has a very early Aegean history. The 'flask' body, which looks as if it originated in leather-work, though sometimes coupled with a mouthpiece of the beaked gourd type, appears already at Troy[3] and Yortan.[4] A fragment of a similar vessel was found at Phylakopi belonging to the beginning of the Middle Cycladic Age,[5] and the 1925 season's work at Knossos produced a fine example, illustrated below,[6] of a more developed phase of its evolution in M. M. II polychrome ware. From the closing M. M. II phase onward the 'pilgrim's flask' is a recurring Minoan form, with or without a base.[7] The possibility certainly suggests itself that this Egyptian specimen of pure tin may afford a clue to the Aegean medium through which the metal reached the mouth of the Nile. The shape itself points to distant travel.

Western distribution of 'segmental' beads.

Some indication of the part which Minoan commerce seems to have played in transporting tin extracted from the Cantabrian ranges on the one side or from Cornwall on the other has been already drawn[8] from the Western diffusion of a class of segmented beads of a form which Crete early derived from Egypt. It may be here noted that though faïence beads of this type are unknown in Minoan deposits till the closing phase of the Middle Minoan Age (M. M. III),[9] or a date approximating to 1600 B. C., steatite examples were already coming into vogue in M. M. I,[10] or about 2100 B. C., and in stone indeed the type seems to go back in Egypt to late pre-dynastic times as well as to the early days of Ashur.[11] Where in the West we find derivatives of this type in other materials than steatite, such as bone and stone, a

[1] Petrie, *Abydos*, iii, p. 50 and Pl. XVII. It was analysed by Prof. A. H. Church and proved to be pure tin.

[2] In the case of a small two-handled alabaster flask of this kind of Rameses II's time in the Univ. Coll. Museum, a silver base is added.

[3] Schliemann's *Sammlung*, No. 636, and cf. H. Schmidt, *Troja und Ilion*, p. 270, Fig. 157. *Loc. cit.*, Fig. 156, shows a more normal neck with two handles and a flattening at the base of the body.

[4] *British Museum Cat.*, *Vases*, vol. i, pt. i (Forsdyke), A. 38.

[5] *Phylakopi*, Pl. IX, 11 (C. C. Edgar, p. 100). Owing to the 'matt' character of the painted design Dr. Mackenzie refers the vessel to M. C. I rather than E. C. III.

[6] See p. 215 and Fig. 121, *a*.

[7] *Ib.*, Fig. 121, *b*, *c*.

[8] *P. of M.*, i, pp. 490–4, Figs. 351, 352.

[9] In the Temple Repositories at Knossos (*loc. cit.*).

[10] As, for instance, in the *tholos* Ossuary of Kalathianà. Xanthudides, *Vaulted Tombs of Mesarà* (transl. Droop), Pl. XLIII *b*, No. 829, and that of Platanos (*op. cit.*, Pl. LVIII, No. 1149; fifth bead from l.). The deposits in which these beads were found belonged in both cases apparently to M. M. I.

[11] Mr. V. G. Childe informs me that a stone example of a segmental bead with a gold

date approaching the higher level is not therefore excluded. This observation may be borne in mind in considering the fine specimens of stone beads of this form from the Aveyron dolmens where we may trace the influence of the North-Western line of this commerce, on the way to the Lower Gironde.

Was there a direct Iberic route via Malta?

While considering this evidence of the overland course of early commerce towards the North-West, the more direct lines across the sea that brought the Eastern coasts of Spain into connexion with Sicily and the Maltese Islands, and the Tyrrhene and Ionian coasts of Italy, must not be left out of account. As already observed, it is a mistake to suppose that primitive navigation—much as it seems to have avoided iron-bound headlands—shrank from considerable sea-passages. It may indeed be inferred that the direct oversea intercourse between Crete and the Nile Valley that existed from a remote prehistoric epoch had had a Western extension. Not only do imported beads and their copies such as are recorded from the cemeteries of the rich silver-mining region of South-Eastern Spain[1] afford a strong presumption of this, but the primitive stone images found in the same context may be certainly held to stand in a dependent relation with regard to an Aegean class belonging to a cultural phase equivalent to the last Early Minoan Period.

Minoan traces in Maltese Megalithic Monuments.

The traces of Minoan influence on the curvilinear decoration of the Maltese monuments, suggested by me long since, have been confirmed by a very detailed parallel supplied by a characteristic M. M. II vase pattern, to which attention has been called in the first volume of this work.[2] Further correspondences in more than one direction, which it is impossible to pass over, are given below. That the Maltese islanders, whose ancient pillar worship shows so many parallels with that of the Minoans, received more than one cultural impulse from the early Cretans can hardly be doubted in view of recent discoveries, though the manifestation of this often takes an independent and divergent shape.

Malta on Mediterranean highway.

Malta itself, forming a kind of half-way house between the Eastern and Western Mediterranean basin, was well adapted to become a maritime staple of Minoan commerce with the Iberic World. It lies indeed almost in mid channel, facing the strait that separates Sicily from Cape Bon on the African side, and must have derived, in the most ancient as well as modern times, an importance with regard to maritime traffic quite disproportionate to its size.

plating is to be seen in the pre-dynastic series at University College, London. Segmented beads in glazed frit were found at Ashur in the G. stratum (*c.* 3000 B.C.); A. W. Andrae, *Die archäischen Ishtar-Tempel in Assur*, p. 82, Fig. 61, *c*.

[1] *P. of M.*, i, p. 492, note 3.

[2] *Ib.*, pp. 261–3, Figs. 194, *k*, 195.

Its Monuments advanced examples of Western group.

The Megalithic Monuments of the islands cannot themselves be regarded as representing an imported style of structure. On the contrary they must be taken as standing *in situ*, in geographical relation to a West Mediterranean insular group, including the *Nuraghi* and 'Tombs of the Giants' of Sardinia, and the *Naus* or *Navetas*—'ship'-like vaults—of the Balearic Islands, but finding simpler though mighty parallels throughout a wide Iberian and Britannic region.[1] On the North African side again, linked by the Megalithic remains of the small island of Pantellaria, widespread parallels occur, more primitive, indeed, but at times of a very suggestive nature. Thus at Ellez in Tunisia a monument occurs consisting of three large dolmen-like chambers on each side of a central corridor.[2] Dolmens of a simple form are scattered over a wide North African tract, and the field of comparison has been now extended by the discovery of Neolithic examples of similar structures in the Nile Valley itself.[3]

Sanctuaries associated with cult of dead.

Owing doubtless to the advantageous position of the Island, on a main highway of intercourse, its monuments had already by the close of the insular Stone Age attained a degree of structural elaboration and ornament in advance of those of the other regions occupied by this widely diffused family. Something of what seems to have been originally a simple sepulchral plan clung to them to the last, and the pairs of apsidal recesses on each side of a central gangway that rise before us at Hagiar Kim, Mnaidra, Giganteia, and elsewhere are in principle the same as those which on a smaller scale we find in the chambered Long Barrows[4] of Uley or Wayland's Smithy and which, as noted above, recurs in the case of a Tunisian monument. That sepulture had actually been practised within the Maltese Megalithic building had seemed to me from my first acquaintance with them to be indicated by the cists in places superimposed on one another, and by the resemblances presented by the window-like openings of some of the cells to the Sicilian *tombe a fenestra* and the similar rock tombs of Chaouach in Tunisia.[5]

[1] In *Myc. Tree and Pillar Cult*, 1901, p. 98 seqq. (see, too, *J. H. S.*, xxi (1901), pp. 99–204) I had already pointed out the true place of these monuments as against the received theory that they were of 'Phoenician' origin. The same conclusions were independently brought out by Dr. Albert Mayr in his more elaborate study, *Die vorgeschichtlichen Denkmäler von Malta* (Abhandlungen der K. bayer. Akad. der Wiss., I. Cl., xx. Bd., iii. Abth., 1901).

[2] Bertholon, *Matériaux, &c.*, 1888, p. 420 seqq.; cf. Mayr, *Die Insel Malta*, p. 39. I had an opportunity of examining some of the Tunisian dolmens in 1896.

[3] Mr. C. Quibell informs me that dolmens have been recently found in the neighbourhood of true Neolithic interments and hut circles, near Cairo.

[4] On these see especially J. Thurnam, *Archaeologia*, xlii, p. 208 seqq.

[5] *Myc. Tree and Pillar Cult*, pp. 99 and 102. I visited the dolmens and rock tombs of Chaouach in March, 1895.

This sepulchral connexion has since been borne out by the discovery of the underground vaults and cells at Hal-Saflieni, reproducing many of the features of the free standing piles but containing actual interments.[1] That there was a fundamental relation to the cult of the dead may be safely inferred, but these great monuments must in the main be regarded as representing a higher religious stage and as devoted to the worship of divinities, who, like the great Minoan Goddess, may have combined, together with chthonic attributes, a celestial character. The elaborate ritual arrangements for what seems to have been predominantly at least an aniconic cult with pillars and cones as the objects of worship and the oracular nooks with mysterious holes for communication point certainly to an organized priesthood. The merchant venturers of the Priest-Kings of Crete must have found here a sacerdotal dispensation which they could well understand. Prehistoric Malta indeed as a Holy Island, with foreign barter protected by the local priesthood and subject to recognized dues, would have been a favoured goal for early navigation. It may well be that the Minoan traders here secured a market in which their wares could be exchanged for the products of the most distant West Mediterranean regions.

Pillar Cult parallel with Minoan.

For the chronology of these Megalithic sanctuaries themselves the discovery in the sepulchral deposit of Hal-Tarxien of a knobbed bone object[2] identical in type with others from tombs and cave dwellings of the First Sikel Period[3] and the third stratum of the Second City of Troy[4] affords a welcome clue. This object, which seems to belong to the early phase of the First Middle Minoan Period,[5] may well be taken to mark the beginning of the direct trade relations between the Maltese Islands and the Aegean of which, for various reasons, we may trace a record in the later decorative elements of these Monuments. Even though the date of their foundation may be considerably higher than this, we may infer that it lies well within the limits of the Chalcolithic Age in the Mediterranean region. To call the

Indications of Chalcolithic date of Maltese Monuments.

[1] In view of the discovery at Hal-Saflieni, Dr. A. Mayr (*Zeitschr. f. Ethnologie*, xl, 1908, p. 539) accepted my view that the sanctuaries were in part connected with sepulchral rites. For reasons given below, I am unable to follow him, however (*op. cit.*, p. 500), in taking the Cretan comparisons as evidence that Hal-Saflieni finds are of 'Mycenaean or, rather, "Late Mycenaean" date'.

[2] *Archaeologia*, lxx (1920), p. 195, Fig. 19. This relic was not recognized by its discoverer. It is simply described as an ivory object 55 mm. long with five round bosses.

[3] *P. of M.* i, p. 21, Fig. 3.

[4] A. Götze, *Troja und Ilion*, i, p. 392, Fig. 376.

[5] The stage of evolution of the dagger blades belonging to the Trojan stratum in which similar objects were found seems to correspond with that of M. M. I *a*. The short triangular E. M. I–II type is already a distant reminiscence.

monuments Neolithic indeed, on the purely negative evidence due to the non-discovery of metal implements, is wholly unwarranted.[1]

In comparing the curvilinear and spiral decoration of the blocks and pottery of the Maltese Monuments with Minoan and Aegean forms one

Maltese curvilinear decoration

FIG. 92. QUADRUPLE SPIRAL PATTERN, FROM MALTESE MEGALITHIC SANCTUARY.

a *b*

FIG. 93. *a*, LOWER PART OF M. M. II POLYCHROME VASE; *b*, UNDER SIDE OF BOWL FROM THE MEGALITHIC SANCTUARY OF HAL-TARXIEN, MALTA.

important point at once emerges. The Maltese examples do not in any case represent the earliest stage of such patterns. Where such designs occur they illustrate a secondary stage of evolution in which the curves or coils are furnished with projecting spurs, or buds, as in the quadruple coil scheme shown in Fig. 92. These buds, in the mature aspect of the local style, grow

a secondary stage.

[1] The term 'Neolithic' is nevertheless continually used in the Reports of the recent discoveries in *Archaeologia*.

into regular branches and sometimes assume antler-like forms. A comparison has already been given above between the design on a fine M. M. II jug from the Kamares Cave showing **S**-like scrolls with a kind of budded stem between (see Fig. 93, *a*)[1] and the very similar design on an incised and inlaid bowl from Hal-Tarxien repeated in Fig. 93, *b*.[2]

Painted decoration of

A new class of early Maltese decoration has been supplied by the Hypogaeum of Hal-Saflieni, two of the vaults of which are adorned with

Fig. 94. Painted Ceiling, Hypogaeum of Hal-Saflieni.

Hal-Saflieni: Minoan prototypes.

painted patterns supplying a rude parallel to the ceiling designs of Ancient Egypt and the Minoan world. One of these is shown in Fig. 94.[3] In this case the principal unit seen on the borders of the vault is the **S**-scroll combined into a triquetral arrangement, which again was a favourite Minoan device reproduced on seals of the first two Middle Minoan Periods.[4] The nucleus of these is shown in Fig. 95, *a*, side by side with a section of the Hal-Saflieni border decoration (Fig. 95, *b*). Here again some of the coils show

[1] The design is developed in *P. of M.*, i, p. 262, Fig. 194, *k*, into a 'ceiling pattern'.

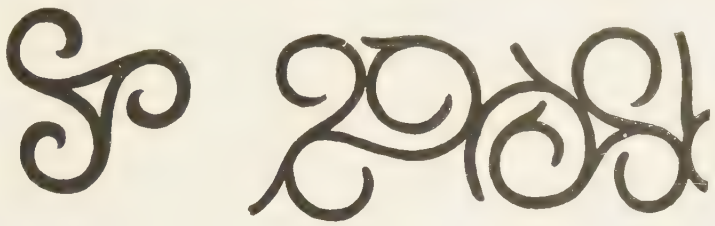
[2] Zammit, *Archaeologia*, lxviii, p. 280, Fig. 13; *P. of M.*, vol. i, p. 263, Fig. 195. Schuchhardt, who (*Alteuropa*, 1919, p. 176 seqq.) reproduces some other spiraliform patterns on Maltese pots, rightly points out the connexion with Minoan polychrome decoration. But he read the evidence backwards and makes the quite inadmissible statement (p. 184): 'Der Kamares-Stil . . . hat seine Vorstufen in Malta, aber Kreta hat seine Vollendung gebracht'. (Repeated in Ed. 2, 1926, p. 107.)

[3] The ceiling of the other painted chamber shows coils terminating in disks and antler patterns (Zammit, *The Hal-Saflieni Hypogaeum*, Malta, 1925, Pl. 2). (Cf. Schuchhardt, *Alteuropa* (1919), p. 181, Fig. 53, where, p. 179, Fig. 52, there is also a development of the ceiling shown in Fig. 94.)

[4] See below, p. 197, Fig. 106.

excrescences such as we also see attached to those on the Cretan signets. The frieze here formed of a conjunction of S-scrolls also finds an interesting comparison in the development of a combination of the parallel Minoan class of C-scrolls (Fig. 96) seen on an E. M. III painted jug.[1]

In the central space of the Hal-Saflieni ceiling the coiled decoration is much broken up, but it is interspersed with large disks such as are constantly associated with the curvilinear patterns of Minoan Art about the beginning of



a *b*

FIG. 95. *a*, NUCLEUS OF TRIQUETRAL SEAL TYPE (S-SCROLLS COMBINED); *b*, SECTION OF BORDER DECORATION, HAL-SAFLIENI.

FIG. 96. C-SCROLLS COMBINED: DEVELOPMENT OF PATTERN ON E. M. III JUG.

the Middle Minoan Age. It may be sufficient here to refer to a class of clay sepulchral chests (*larnakes*) and jars of which good examples of M. M. I *a* date were found in the Pachyammos Cemetery (Fig. 97, *a–e*). The disks in this case not only serve the practical purpose of forming the starting-point of scrolls, but also break away from them and appear as on the Hal-Saflieni ceiling in isolated positions (Fig. 97, *d*, *e*), and, indeed, on the jar (Fig. 97, *e*) become quite independent features. It will be seen, moreover, from Fig. 98, showing a part of one of the well-known Melian bird vases, that the influence of such a decorative scheme was still strong enough in the closing phase of the Middle Minoan Age to impose itself on vase-painters outside Crete. The outlines of the birds here are, in fact, artfully fitted in with reminiscences of a pattern of large disks and connecting scrolls. A further example of the evolution of such patterns is seen in the 'racquet and ball' group to be described below.[2]

The disk motive.

[1] See *P. of M.*, i, p. 110, Fig. 77, *b*.

[2] See p. 213.

FIG. 97. DISKS IN RELATION TO SCROLLS ON *LARNAX* (*a*) AND SEPULCHAL JARS.

FIG. 98. PART OF DESIGN ON MELIAN BIRD VASE, SHOWING INFLUENCE OF LINKED SCROLL AND DISK PATTERN.

Miniature altar-like structure of Minoan class.

In view of some of the smaller relics brought to light in the recent excavations at Hal-Tarxien we may even go farther and discern in certain structures that must have been contemporary with the later phase of the sanctuary a direct architectural influence from the Minoan side. A small model, executed apparently in the local limestone, of a building with an altar-like erection above is seen in Fig. 99.[1] The increasing projection upwards of the stages of the cornice in both cases answers to a marked characteristic of

Fig. 99. Part of Miniature Altar-like Erection of Limestone, Hal-Tarxien.

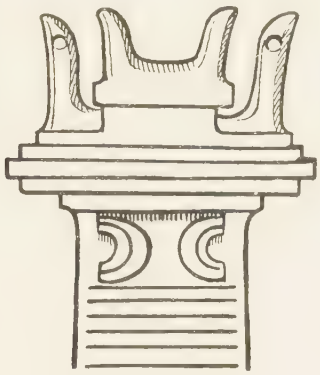


Fig. 100. Altar above Miniature Gold Shrine, Mycenae, architecturally rendered.

the Minoan Order as illustrated by a variety of examples belonging to the close of the Middle Minoan Age. This not only appears in the case of the copings of entablatures, but is also applied to pilasters or consoles such as those which supported the base of reliefs on the Palace walls at Knossos, the outer faces of the stepped profile sometimes sloping slightly inwards. (See p. 815, below.)

The central prominence of the little repoussé gold shrines from the Mycenae Shaft Graves—rendered in a more strictly architectural fashion in Fig. 100—may be thought indeed to carry this comparison a step farther, for here we see an altar-like structure, superimposed on the graduated coping as in the case of the stone object from Hal-Tarxien. The miniature terra-cotta shrine from Knossos itself supplies a good parallel for votive objects of this class.[2]

Another relic here found is a fragment of a red-faced vessel (Fig. 101),[3]

[1] Zammit, *Archaeologia*, 1916, Pl. XXIV, Fig. 1, there described as 'model of a Neolithic building'. Dr. Zammit observes in the text (p. 142) that no building of this kind has yet been found elsewhere.

[2] *P. of M.*, i, pp. 220, 221 and Fig. 166.

[3] Zammit, *Archaeologia*, xx, 1920 (Third Report on the Hal-Tarxien Excavations),

Incised design with isodomic masonry.

showing an incised design filled with white material, of a building with walls of isodomic masonry and apparently a group of three pillars in an opening. The isodomic masonry represents an advanced architectural stage: at Troy it is only found in the Sixth City, and in Egypt itself is more characteristic of Ramesside times. The general appearance indeed of this architectural design recalls the faïence plaques with the 'House façades' from the Knossian deposit[1] or the castellated isodomic buildings of the Zakro sealings. We are far away indeed from 'Neolithic models'! The pillars in the opening again suggest a strong analogy with such Minoan religious scenes as that on the signet-ring from Knossos showing a sacred pillar standing within the door opening of a *temenos* the walls of which are also built of square-cut masonry.[2] Groups, apparently of three columns, the central one higher than the others, are seen on two stone reliefs from Hal-Tarxien between two obese figures of the usual class (Fig. 102, *a*, *b*).[3] In another case we see the lower part of a miniature group of two columns between piers[4] (Fig. 103).

Its pillared opening.

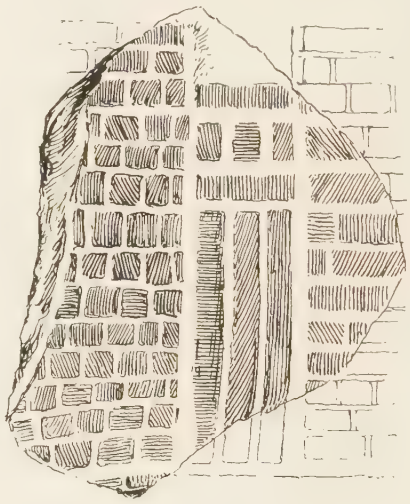


Fig. 101. Incised and Inlaid Design with Isodomic Masonry.

Foliated designs parallel to Minoan.

In view of these parallels new significance may be thought to attach to the obvious resemblance between the foliated reliefs on one of the altars of Hagiar Kim—resembling a fern of the spleen-wort genus showing fronds symmetrically arranged on each side of a single stalk—and a recurring vegetable type which appears on a faïence chalice from the Temple Repositories of Knossos and a repoussé gold cup from the Fourth Shaft Grave

Pl. XVI, Fig. 1, *c*, and p. 199. 'It is of a light red colour and highly polished. The lines are deep and filled with a white paste. The perpendicular lines depict battlements, surmounted by merlons or crenelles or their early equivalents.' I prefer to see a lintel probably of wood, supporting stone blocks held by another beam above.

[1] *P. of M.*, vol. i, p. 301 seqq. and Fig. 226. Whether these faïence plaques belong to the closing phase of M. M. II or the beginning of M. M. III, we may approximately date them about 1700 B. C.

[2] *P. of M.*, i, p. 160, Fig. 115.

[3] Zammit, *Archaeologia*, lxx, Pl. XV, Figs. 1 and 3. These show two sides of a block on the front of which is the lower part of an obese female figure with pleated skirt.

[4] Zammit, *Archaeologia*, lxxvii (1916), Pl. XXIV. A group of three pillars with rounded tops also occurs.

at Mycenae, all probably belonging to the latter half of the Third Middle Minoan Period.

The general similarity of the Minoan and Maltese cult cannot be disputed. The aniconic worship seems in both cases to be connected with

Detailed resemblances

a *b*

Fig. 102. Reliefs showing Groups of Pillars between and beside Obese Female Figures, Hal-Tarxien.

matronly divinities. By themselves the common elements in the pillar worship might not be taken to imply more than that both cults belonged in themselves to the same baetylic stage of primitive religion. But when such scenes appear, as here shown, in connexion with columns of an advanced architectural type very far removed from the menhirs and rough supporting blocks of true Neolithic fashion and in specialized architectural forms such as the miniature shrines and altar; when we see the pillars themselves in the opening of a building of advanced isodomic structure, and note, besides, the derivative stage in which the curvilinear form of decoration first appears on these monuments, we are compelled to go beyond such general comparisons and to recognize a very real reaction from the Minoan side on the externals of the Maltese cult in its developed form.

with Minoan features.

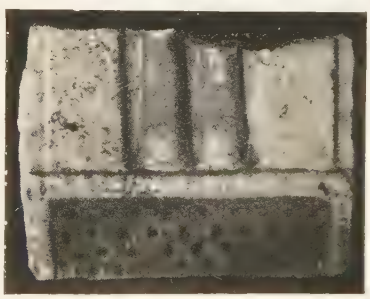


Fig. 103. Lower part of Pair of Columns between Pillars, Hal-Tarxien.

The converging indications above noted point to the early part of the

Chronological data.

Overlying Bronze Age stratum.

Middle Minoan Age, or a date approximating to 2100 B.C., as the epoch when this Cretan and Aegean influence first begins to make itself manifest. The more advanced evidences of this connexion would seem, however, best compatible with forms in vogue towards the close of the Middle Minoan Age. An archaeological *terminus a quo* in the lower direction has now been supplied by a recent discovery of Professor T. Zammit while excavating the buried sanctuary of Hal-Tarxien.[1] Overlying a deposit of drifted sand, about a metre thick, above the floor of the original structure he found in fact a group of cremation interments representing the fully developed insular Bronze Age [2] and exhibiting a wholly new type of culture, in the pottery of which, for instance, all traces of the earlier curvilinear decoration have disappeared. In this deposit, separated thus from the earlier remains by an appreciable interval of time and belonging, so far as it is possible to judge, to a new and intrusive ethnic element, there nevertheless occurred perforated ornaments of birds' bones carved in imitation of the segmental class of beads, and affording continuous illustration of some connexion with the source of such objects, apparently dating from the Late Minoan Age.

Libyan affinities of Maltese cult.

It has been already suggested that on one side the Minoan Religion had been influenced through the very early Libyan connexion which has received illustration in a previous Section. It seems permissible therefore to suppose that the parallelism between Minoan cult and that of the Maltese sanctuaries may eventually explain itself by a chain of connexion along the North African Coast.

As far as history goes back the Maltese Islands have belonged ethnically to that region. Their inhabitants, once 'Liby-Phoenician', are to-day 'Christian Arabs'. It is noteworthy indeed that the nude class of obese female images in a squatting pose found in the Maltese sanctuaries find their nearest analogies in pre-dynastic Egyptian examples such as those of Naqada. Shallow bowls again of a type found in the hypogaeum of Hal-Saflieni, with goats and bulls incised around,[3] recall the similar pans of Gebelein,[4] Naqada,[5] and other prehistoric cemeteries of the Nile Valley with painted figures of animals. In default, indeed, of intermediate links such comparisons may be thought too distant to carry conviction. The similarities presented, however,

[1] *The Hal-Tarxien Neolithic Temple, Malta* (*Archaeologia*, vol. lxvii (1916), p. 127 seqq.) and *Second Report on the Hal-Tarxien Excavations* (*Archaeologia*, vol. lxviii (1917), p. 263 seqq.), Third Report (*ib.*, vol. lxx, 1919, p. 179 seqq.).

[2] *Op. cit.*, vol. lxvii, p. 134 seqq.

[3] N. Tagliaferro, *Liverpool Annals of Arch.*, iii, Pl. XV.

[4] J. de Morgan, *Origines de l'Égypte* (1896), Pl. II.

[5] Petrie and Quibell, *Naqada and Ballas*, Pl. XXIX, 35, 97.

by the triple columnar groups such as the above with the recurring trinities of pillars—often above altar-bases—thousands of which are scattered over the Liby-Phoenician world, are too striking to be merely fortuitous. Such groups are associated with the names and symbols of Baal Haman and of his consort Tanit,[1] the former of whom, sometimes personified with ram's horns, is identical with the old Libyan God of the Oasis, otherwise confounded with the Egyptian Amon.[2] This divinity, the classical Zeus Ammon, had absorbed, as the *Deus Fatidicus*, the soothsaying powers attributed by the Libyans to their dead, and it is clear that such a cult fits in well with the oracular rites and funereal associations of the Megalithic sanctuaries.

Pillar trinities.

Oracular rites.

The connexion, already suggested in this work, of the Cretan Mother Goddess—on one side, at least of her spiritual being—with Neith, the Delta Goddess, would bring Minoan cult into relation with other aspects of the Libyan religion. The substantial identity of Neith with the Ausean Goddess of the Lake Tritonis (otherwise assimilated to the Saïtic 'Athena' of Herodotus) has been demonstrated by Oric Bates,[3] who, with good reason, has expressed a strong suspicion that the latter divinity is to be identified with the *Dea Caelestis* of Carthaginian Africa, the Consort of the Libyan Sky God.[4] It seems possible that, owing to some deep-lying affinities of the kind indicated, the Minoan merchants who *ex hypothesi* found a market in the Maltese Islands had recognized a certain religious community in the local cult, while the islanders themselves may have readily accepted at their hands some of the externals of a parallel form of worship more civilized than their own.

Connexions of Early Minoan religion with Delta Goddess.

The Libyan *Dea Caelestis*.

[1] Sometimes the two baetylic trinities of Baal Haman and Tanit are placed side by side on the same stela above a common altar, cf. R. Pietschmann, *Gesch. der Phoenizier*, p. 105.

[2] See Oric Bates, *The Eastern Libyans*, p. 190 seqq.

[3] *Ib.*, p. 203 seqq.

[4] For the African Sky God, the 'Saturnus' of Roman monuments, see especially J. Toutain, *De Saturni dei in Africa Romana cultu*. 'Saturnus' was associated with 'one of these vague nature Goddesses of whom Rhea Cybele and Ops Regina were examples' (Bates, *op. cit.*, p. 201).

§ 40. Reactions on Middle Kingdom Egypt: Seals and Ceiling Patterns.

Return wave of Cretan and Aegean influence on Middle Kingdom Egypt; Spiraliform Aegean patterns in Crete merged with indigenous curvilinear system: This independent system already evolved before close of Early Minoan Age; Linked C- *and* S*-scrolls; 'Tendrilled'* S*-pattern on Early Minoan seals: its evolution in Middle Minoan and Mycenaean decorative designs: This and other elements of Minoan derivation in West Illyrian Culture; Reaction of Minoan sphragistic types on Egyptian patterns; Reappear on Mycenae Stelae; Relation of seal patterns to ceiling designs; 'Template' ideograph on Middle Minoan seal-stones; Ceilings reconstructed from Middle Minoan patterns on seals and vases; Minoan tradition in Egyptian ceilings; Possible influence of patterns on cloths and sails; Minoan Scrolls linked on Scarabs, &c., with Nilotic features.*

The undoubted connexions with prehistoric Malta, the ancient Amber Route to the North, the sources of tin and the distant contact with the Iberic and even the Britannic West—all this, though deserving of notice, has a less immediate bearing on our central theme than the fundamental relations with the Aegean World on one side and the primeval intercourse with the Nile Valley on the other.

Cretan and Aegean reactions on Middle Kingdom Egypt.

A new factor, indeed, is introduced about the beginning of the Middle Minoan Age, by the opening out of direct commercial communications with the Syrian ports, perhaps accompanied by actual mercantile plantations on or off the South-Eastern littoral of Asia Minor. With regard to the influx of oriental elements thus derived fresh evidence is afforded by some discoveries referred to below,[1] made in and about the harbour town of Knossos.

But the Port of Knossos was linked, as we have seen by the Minoan Made Way, with the important emporium of Komò on the farther coast of the Island, and it is as the natural channel for two alternating currents of influence from the Aegean and the Libyan Sea that the 'Great South Road'—or whatever more primitive through-route had preceded it—fulfilled its main historic function.

It has already enabled us to find the key to the extraordinary

[1] See below, p. 253 seqq.

phenomenon of the discovery at Knossos, and at Knossos alone, though on the Northern Coast, of a whole series of imported stone vessels of pre-dynastic and proto-dynastic Egyptian fabric. So, too, when we find in the primitive 'beehive' ossuaries of the Mesará district, which lie in close relation to this through-route or its branches, side by side with primitive stone figures of pre-dynastic type, others of Cycladic shape[1] and cut out of Island marble, we recognize the operation of the Aegean counter-current. These figurines, as their associations show, reached the Island in the closing Early Minoan phase, and illustrate an exceptional invasion of Crete by Aegean forms, of which we have other evidence, at that epoch.[2] The intensive current of Aegean influence that now sets in, moreover, is marked, as already noticed, by the appearance in the Island of a curvilinear class of decoration, largely of indigenous Minoan growth, but which links on to a spiraliform system much in evidence in the Cyclades at this time, and which itself had a wider Neolithic range in the Balkan lands and their borders to North and East.

Spiraliform Aegean patterns in Crete.

In connexion with the pure spiraliform class the small stone bowl (Fig. 104, a) which was among the earlier relics from Tholos B at Platanos,[3] is of special interest. The receptacle itself, with its flat collar and perforated handles, is the lineal descendant of the massive pots of conglomerate and other materials of Late Pre-dynastic usage in Egypt, a type of which the remains of more than one example has come to light on the site of Knossos.[4] This type, it may be observed, was imitated in a large Nilotic class of painted clay bowls such as those presenting designs of the early river-craft, and which in other cases draw these decorative features from suggestions supplied by the material itself. Thus the compact coils often distributed about the surface[5] are the ornamental equivalents of the round pebbles of conglomerate or, as has been suggested, of nummulitic limestone. These isolated coils, indeed, though true spirals, never underwent any systematic evolution in the Nile Valley and entirely passed away.

[1] For examples of the two classes from Kumasa see Xanthudides, *Vaulted Tombs of Mesará*, p. 22 seqq., and Plates IV and XXII. The imported nature of the Cycladic figurines in Crete is illustrated by the frequent cases of mending.

[2] See *P. of M.*, i, p. 112 seqq.

[3] Xanthudides, *op. cit.*, p. 102 and Pl. XI. No. 1924 *a*.

[4] See above, *P. of M.*, i, p. 65, Fig. 28 and Fig. 31, and ii, p. 194, Fig. 104, *a*. It is to be observed, however, that in the case of the Platanos pot, as in that of the imitative Cretan vessels generally, the handle is perforated vertically after the manner of contemporary clay pots and not horizontally as the early Nilotic specimens.

[5] Petrie and Quibell, *Nagada and Ballas*, Pl. XXXVI, No. 670.

The coincidence is curious, but there is a complete gap between this abortive class of coiled decoration and that illustrated by the double row of interconnected spirals seen on the Platanos stone bowl which belong to the fully developed Aegean system. This vessel, indeed, affords an extremely significant illustration of the meeting of currents of influence which find their sources very far afield.

The execution of the running spirals, here in high relief, as if laid on in another material, leads us, indeed, to a particularity of the Aegean spiraliform system which is itself intimately connected with coiled work in metal, or perhaps, originally, string. A specimen of this, showing linked rows of

FIG. 104, A. STONE BOWL; THOLOS B, PLATANOS. ($\frac{2}{1}$)

FIG. 104, B. GOLD CYLINDER WITH APPLIED SPIRALS, KALATHIANÀ. ($\frac{2}{1}$)

spirals in gold wire, applied to a gold ring-like object, was found in the Second City of Troy.[1] A gold cylinder bead with similar applied spiraliform wire-work occurred in the Early Minoan 'beehive' ossuary of Kalathianà (Fig. 104, B).[2] It probably belongs to the close of E. M. III, and has a special interest, as we here see the intrusive cylinder type from the East, which begins to make its appearance in Crete about this time, associated with the developed Aegean type of spiraliform decoration. Both form and ornament reached Mesarà by the same route from the North Coast of Crete.

Independent curvilinear system evolved in E. M. Crete.

But although the passage South of the Aegean spiral system is now generally admitted and its merging into the Cretan decoration and thence into Egyptian cannot be gainsaid, there is an aspect of the case of the greatest importance in the history of the evolution of ornament and already referred to in relation to certain aspects of the Maltese decoration that has

[1] Schliemann, *Ilios*, p. 489, No. 837.

[2] Xanthudides, *Vaulted Tombs of Mesarà* (transl. Droop), p. 82 and Pl. VIII, No. 391. (The length of the cylinder is only 9 millimetres.) The great days of this ossuary, the richest known in Crete, seem to have ended before the beginning of M. M. I (see *op. cit.*, p. 84).

hitherto escaped recognition. The ground, in fact, had already been prepared in Crete for the acclimatization of the fully developed spiraliform system by the upgrowth of a somewhat elaborate curvilinear style of purely native culture. It is from the hybridization of this indigenous growth by the new exotic implantation that the beautiful decorative schemes of Minoan Art finally take shape. It is from this composite Aegean source that many of the most elaborate Mycenaean patterns can be shown to originate and, at the same time, this indigenous Cretan class also largely affected Egyptian ornamental designs from the beginning of the XIIth Dynasty onwards.

Already by the Second Early Minoan Period we begin to trace the vogue of decorative designs, consisting of simple linked curves, which might be described as **C**s and **S**s. Sometimes, again, we find disks linked with tangential lines or ribbon-like bands. At times these disks are caught in the curves of elongated **S**s, and these **S**-shaped figures as well as plain hooks or **J**s are also to be seen symmetrically grouped in various simple ways.

Linked **C**, **S**-, and **J**-scrolls.

The **S** motive often originates from the breaking up of 'cable' borders on pots or other objects, of which we have many examples. The ritual clay table found in the *sacellum* of the Early Palace at Phaestos presents rows of impressed **S**s, and we see the sign repeated in alternate colours as a decorative entity on a fine polychrome cup from Knossos, illustrated above.[1] On many of the early seals, again, it is associated with tendril-like sprays (see Fig. 105, *a*, *b*, *c*),[2] an artistic combination, perhaps suggested by whorl-shells, which will be found to have a very special value in the history of Minoan and Mycenaean ornament.

The comparative designs given in Fig. 105 demonstrate the fact that this combination of **S**-scroll and tendril was taken over not only in the decoration of the finest polychrome fabrics of the Second Middle Minoan Period (Fig. 105, *d*),[3] but on embossed gold plates such as those found in the Shaft Graves at Mycenae (*e–h*),[4] the earlier of which, in truth, are separated from the polychrome ceramic examples by no long interval of

S grouped with 'tendril'.

[1] *P. of M.*, i, Fig. 183, *a* and p. 243.

[2] Fig. 105, *a*, from Platanos (Xanthudides, *op. cit.*, Pl. XIV, 1078, above); *b*, Mochlos E. M. II (Seager, p. 70, Fig. 39; *P. of M.*, i, p. 94, Fig. 64, *b*). The early deposit of Tomb ii, in which this ivory signet was found, belonged almost exclusively to E. M. II; only one object, a small jug, could be assigned to E. M. III (Seager, *op. cit.*, pp. 23, 24); *c*, Platanos (Xanthudides, *op. cit.*, Pl. XIII, 1114).

[3] *P. of M.*, i, Fig. 186, *c*; C. C. Edgar, *Phylakopi*, p. 150, Fig. 132: among the earliest Melian imports of 'Knossian' style.

[4] For Fig. 105, *e*, see Schliemann, *Mycenae*, p. 321, Fig. 484; *f*, *ib.*, p. 323, Fig. 488; *g*, p. 323, Fig. 491; *h*, p. 323, Fig. 487.

time. We see here not only this double conformity of the S-shaped scroll and tendril, but similar triple and quadruple arrangements.

Triple S or 'Triquetra'.

The triple grouping of the S-scrolls has already been illustrated in its

a *b* *c*

Early Minoan Seals, showing S-scrolls and Tendrils.

d

On M. M. II Polychrome Bowl.

e

On Gold Plate: Fifth Shaft Grave, Mycenae.

f *g* *h*

Gold Embossed Plates from Shaft Graves, Mycenae.

Fig. 105. Illustrations of S-scroll and Tendril Pattern: Crete and Mycenae.

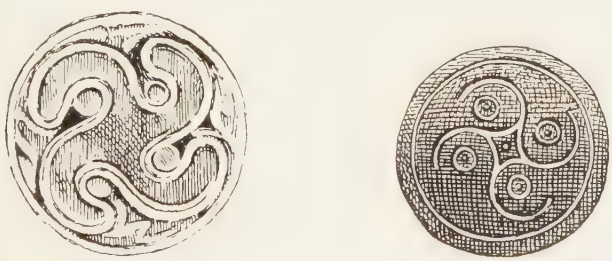
bearing on the genesis of the early Maltese border pattern at Hal-Saflieni.[1] Such 'triquetral' designs, in which simple hooks at times also play a part, also go back to Early Minoan models (Fig. 106, *f*). These, too, are a very

[1] See above, p. 185, Fig. 95.

characteristic feature of the embossed work of Mycenae, and recur on the bone plates from the *tholos* tombs of Kakovatos or 'Old Pylos' (Fig. 106, *e*).[1] At times, too, we have a fourfold grouping resulting in curving forms of swastika or fylfot (Fig. 107). Both this and the 'triquetra' may be described as resting-points in ornamental evolution, which might, no doubt,

a *b* *c* *d* *e* *f* *g*

FIG. 106. TRIQUETRAL DESIGNS ON MINOAN SEALS, *a*, *b*, *c*, *f*, AND MYCENAEAN DISKS, *d*, *e*, *g*.



a *b*

FIG. 107. SWASTIKA OR FYLFOT ON MYCENAE DISKS.

be reached by more than one path. In this case they take shape before our eyes on the Early Minoan seals by a symmetrical application of S-scrolls, and the marks of this origin persist to the Late Minoan Age.

But the 'triquetra', at least, has a much longer history in another field. There is cogent evidence of the survival in the old Illyrian lands East of the Upper Adriatic of certain Late Minoan or Mycenaean elements ultimately

[1] Kurt Müller, *Alt-Pylos* (*Ath. Mitth.*, xxxiv, 1909), p. 283, Fig. 5.

Minoan decorative influence in Illyrian lands E. of Adriatic.

due, perhaps, to contact brought about by the old amber route along these coasts. Side by side with the specifically Minoan type of finger-ring already mentioned[1] with its besil set at right angles to the hoop—which, as we have seen, persisted into the proto-Geometrical phase in Crete itself—we find bronze collars with the S-scroll and tendril diagonally linked to disks. We also see, engraved on such characteristic objects as bronze greaves and the

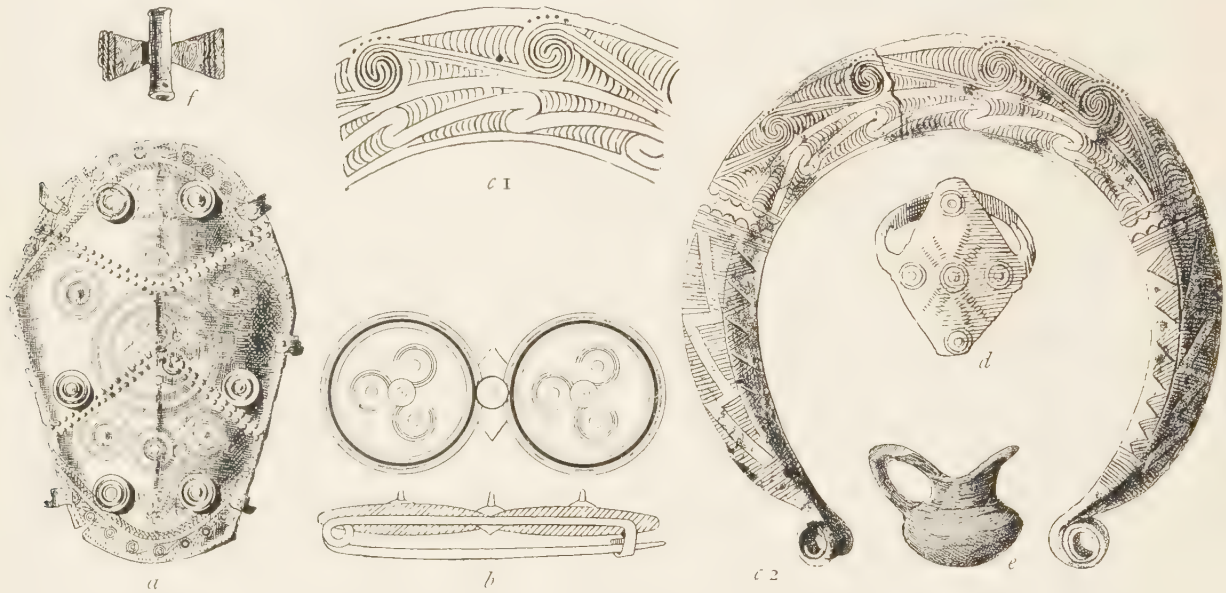


Fig. 108. Elements of Minoan Derivation in West Illyrian Culture of Bosnia: *a*, Bronze Greaves (with 'Triquetra'); *b*, Disk Fibula (with ditto); *c* 1, 2, Bronze Collar (with Linked Coils and Tendrils); *d*, Bronze Ring of Minoan Type as Mycenaean, etc.; *e*, Pendant *Oenochoe*; *f*, Ornamental Derivative of Double Axe.

round plated 'Sub-Minoan' fibulae, 'triquetras' of the same Minoan tradition (Fig. 108).[2] But this phenomenon has a still wider import. The Early Iron Age history of the lands about the head of the Adriatic—Illyrian and Venetic—has a very direct bearing on that of the Celtic tribes who ultimately diffused decorative elements taken over in these regions to the British Islands. Among these elements the 'triquetra' plays an important part.

[1] See A. E., *Ring of Nestor, &c.*, p. 48, Fig. 43 (*J. H. S.*, xlv, 1925).

[2] Fig. 108, *a*, bronze greaves (*Wissenschaftliche Mittheilungen aus Bosnien und der Hercegovina*, iii, p. 11, Fig. 23, Glasinatz); *b*, fibula, from Grehin Gradatz; *c* 1, 2, bronze neck ring (Glasinatz); *d*, bronze ring (*Wiss. Mitth., &c.*, i, p. 123, Fig. 29); *e*, bronze pendant *oenochoe* (*ib.*, p. 100, Fig. 177); *f*, bronze pendant in shape of double axe (*ib.*, iii, p. 25, Fig. 65). Some of these specimens go well down into the Early Iron Age.

C-curves.

Among the main formative features of Early Minoan tradition are also the interlocking C-curves which, triply or quadruply grouped, form a persistent unit in Minoan Art. A good example of the threefold arrangement on an ivory 'cylinder' seal from Platanos is given in Fig. 109, with which a certain parallelism is shown by the ivory cone from H. Triada (Fig. 110 A, *m*).[1] It will be seen that this pattern is substantially identical with one that occurs on one of the Mycenae tomb-stones (Fig. 110 A, *n*) except that the ends of the inner and outer curves have coalesced—a natural development for which there are other parallels. In this way, too, a quadruple grouping of this scroll supplies the prototype of the Middle Minoan seal-types shown in Fig. 110 A, *o*, *p*.

Cumulative evidence of the stages by which the patterns of the S and C classes grew upon Cretan soil is thus supplied by seal-stones going well back into the Early Minoan Age. It will be seen from the Comparative Table (Fig. 110 A) that these decorative forms not only permeated the Art of Mycenae, but had already reacted on Egyptian patterns by the early days of the Middle Kingdom.

FIG. 109. INTERLOCKING C-CURVES ON IVORY CYLINDER, PLATANOS.

Amongst these reactions the C-scrolls play a specially important part, and an interesting development of this pattern has already been given in Fig. 96, p. 183, above.

Reactions on Egyptian decorative patterns.

Various combinations of these, Minoan and Egyptian, are shown in the Comparative Table Figure 110A. As taken over into Egyptian art, this scroll often supplies a canopy for the *waz* or sacred papyrus wand (Fig. 110 A, *a*), and it will be seen that this Nilotic conjunction has in turn reacted on the Cretan seal-type, *g*.[2] The Egyptian variant of the triple combination of these curves (Fig. 110 A, *e*), with the amuletic *nefer* sign inserted within, recurs as a type of seal impressions on Twelfth and Thirteenth Dynasty papyri at Kahun, where Cretan contact was evidenced by the occurrence of many specimens of polychrome M. M. II pottery. Good parallel examples of such scrolls set at right angles to one another are shown in *d*, *k*, *l*. One of these, *k*, is taken from an archaic fresco fragment from the early Palace of Knossos,[3] and a similar scheme reappears as an Egyptian ceiling pattern. Another good specimen is supplied by the upper zone of a steatite pot illustrated at the end of this Section (Fig. 117, B), probably belonging to the early

[1] Xanthudides, *op. cit.*, Pl. XII, No. 1029 and p. 114. In which *tholos* it was found is not stated.

[2] See, too, *P. of M.*, i, pp. 200, 201 and Fig. 150.

[3] *P. of M.*, i, Coloured Plate I, *k*, p. 231, and cf. p. 201. It shows an imitation of 'barbotine' ware.

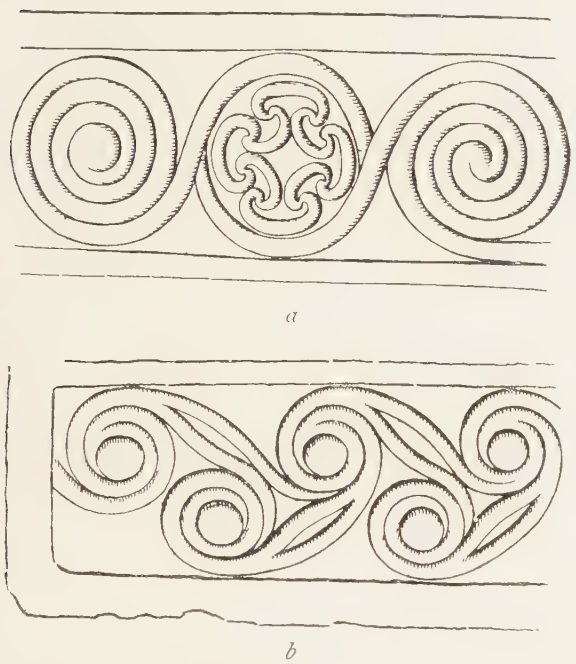
part of M. M. I, which appears as an intrusive element amongst L. M. I vases in a tomb discovered in Cerigo (Kythera).[1]

Fig. 110 a. Minoan Decorative Scrolls and Their Reaction at Mycenae and in Middle Empire Egypt.

In several of these examples the intervening spaces present a close resemblance to double axes (cf. *j*, *l*), and a L. M. I seal pattern, given below, suggests that the figures of the sacred weapon were themselves symmetri-

[1] In the Athens Museum; Dr. Stais had himself noted the fact that the stone vessel represented an intrusive element in the tomb-group, of earlier date.

cally arranged in ceiling decoration.[1] At every turn we realize how these small portable patterns reacted on the adornment of more monumental works. As shown below, they enable us to reconstruct with approximate accuracy certain examples of wall and ceiling decoration in the early Palaces, the actual remains of which are lost to us.



a

b

FIG. 110 B. *a*, SEAL PATTERN (C-SCROLLS) ON STELA VI, AT MYCENAE; *b*, RUNNING PATTERN ON SAME STELA.

As in the case of the 'S-scrolls', the interlocking or linked 'C-curves' in decorative groups, such as already appear on Early Minoan ivory seals, dating well back into the second half of the Third Millennium B. C., survive to be a characteristic feature of the embossed gold plates from the Mycenae Shaft Graves and are further taken over on to the sepulchral *stelae* (Fig. 110 A, *h*, *j*, *n*, and Fig. 110 B, *a*, *b*). In this connexion, indeed, the quadruple schemes (Fig. 110 A, *f*, *o*, *p*) are specially instructive. We find this pattern adapted to the oval scarab shape in Fig. 110 A, *f*, a common Twelfth Dynasty type, the *ra* or 'sun'-symbol being here inserted in the centre. In the Cretan examples, Fig. 110 A, *o* and *p*, on the other hand, belonging respectively to the First and to the Third Middle Minoan Period, we see the original round signet form preserved. The later type, *p*, has a peculiar interest in its relation to Fig. 110 B, *b*, since it is found on clay sealings both at Zakro in the extreme East of Crete and in the harbour town of Knossos,[2] and was clearly a signet type diffused by commercial agency. The taking over of this scheme in a most literal manner on the VIth *stela* at Mycenae,[3] Fig. 110 B, *a*, supplies a striking example of the transference of sphragistic designs to monumental art.

E. M. tradition of S- and C-scrolls survives at Mycenae.

Minoan signet type on Mycenae stela.

Here, too, it may be remarked that a very slight development of an inner and outer circle of C-scrolls gives rise to a maeander pattern con-

[1] See Vol. iii.

[2] See below, p. 254, Fig. 149 *a*, 3.

[3] For the Mycenae *stelae* see, now, especially W. A. Heurtley, *B. S. A.*, XXV, pp. 126–46.

sisting of somewhat flattened alternating curves such as occurs, with slight variations, on pottery and on the embossed gold plates from Mycenae[1] as well as on the *stelae*.[2] Many illustrations are supplied by Egyptian scarab borders. Apart from this, however, the idea of the maeander had already entered into Minoan Art at an early period, owing, it would seem, to Egyptian inspiration.[3]

FIG. 111. M. M. I *a* SEAL-IMPRESSION, KNOSSOS (COMPLETED).

Minoan adoption of Egyptian 'tree' sign.

The simple curvilinear motives of the Minoan system already show a tendency to link themselves with vegetable forms, notably with the 'tree' pictograph of early Nilotic tradition, which constantly recurs on the early seals in company with apes and lions or other elements derived from the same quarter. This sign, with its characteristic arched outline and inner ramifications, became the regular 'tree' determinative in historic Egypt.[4] It appears on a perch as an Egyptian Nome sign,[5] and as a word sign (*am*) it has the meaning of 'graceful' and 'refreshing'. On a seal-impression from Knossos belonging to the initial phase of M. M. I, the design on which is here completed in Fig. 111,[6] we see the 'tree' motive and a quatrefoil combined with quadruply grouped **S**-scrolls. The cable border is also broken into **S**s.

Here we are tempted to see a part of what may have been a more

[1] Schliemann, *Mycenae*, p. 166, Fig. 239, &c

[2] Heurtley, *op. cit.*, p. 129, Fig. 28. Stela II, and fragments, p. 134, Fig. 30.

[3] See *P. of M.*, i, p. 358 seqq. and Fig. 258 (giving Egyptian examples dating from the Sixth Dynasty onwards). Remarkable specimens of a maeander border and of a triquetral adaptation of this pattern occur on the clay seal-impressions discovered by the Swedish excavations at Asinê near Nauplia under the direction of Professor Axel W. Persson. These belong to the concluding phase of E. M. III. Another early specimen is to be seen on the faïence ornament from the cist above the archaic circular building at Tiryns.

[4] For the Fifth Dynasty form of this 'tree sign see *Scripta Minoa*, i, p. 240, Table XVI, *h*. Cf. F. Ll. Griffith, *Mastaba of Ptahhetep*, p. 24.

[5] Apparently of the Twentieth and Twenty-first Nomes (cf. Griffith, *loc. cit.*, and Pl. XX, 174, 192).

[6] For the clay sealing itself see *P. of M.*, i, pp. 201, 202 and Fig. 151. It was found associated with M. M. I *a* pottery.

extended field of decoration such as friezes on ceilings. The suggestion, indeed, based on the appearance of the 'template' sign, that seal-stones were used by craftsmen as patterns for decorative designs on a larger scale may almost be said to prove itself. The evidence supplied by a design on a bead-seal of 'convoluted' form (Fig. 112, *a*),[1] noted by me at an early stage of

Sphragistic keys to ceiling pattern.

a *b* *c*

Fig. 112. *a*, M. M. II Bead-seal with Linked S-coils and 'Tref'; *b*, *c*, Contemporary Bead-seal with 'Template' Signs.

these investigations, may be here summarized. In this case we see a decorative unit which, even at a time when the Cretan palaces were still unknown, suggested the reconstruction of a painted ceiling of the Egyptian class.[2] We now possess the actual remains of such ceilings from palatial chambers.

'Template' sign.

This suggestion was confirmed by the appearance amongst the hieroglyphic signs on a face of a contemporary prism-seal (Fig. 112, *b*) of the object recognized as a decorator's 'template' for stencilling, and this reappears on another face of the same three-sided seal (Fig. 112, *c*) enclosing the tree-symbol, referred to above, with a curvilinear attachment below. This object, indeed, seems to have been ingeniously constructed for giving both the upper arch and the lower double curve of the outlines of the 'tree' (Fig. 113, *a*, *b*), and it is evident that, turned in different positions, it gave the skeleton as it were of a typical ceiling pattern such as that restored in Fig. 114. A further illustration is supplied by the fine cornelian prism-seal, already illustrated in this work,[3] on one face of which, accompanied by a hieroglyphic inscription, appears a seated cat, probably the personal badge of a Minoan prince, whose further titles are given on the other faces of the seal (Fig. 115, *a*, *b*). Among the three signs

a *b*

Fig. 113. *a*, 'Template'; *b*, with 'Tree' Sign inserted.

[1] The seal-stone, a white cornelian, was found near Goulàs in Mirabello. See A. E., *Cretan Pictographs, &c.*, p. 50 (319), Fig. 42, and *P. of M.*, i, p. 275, Fig. 204, *c*.

[2] See A. E., *Cretan Pictographs, &c.* (*J. H. S.*, xiv, 1894, p. 319 seqq. and coloured Plate (XII): Quaritch, 1895, p. 50 seqq. and Plate).

[3] *P. of M.*, p. 277, Fig. 207, *a*, and cf. *Scripta Minoa*, i, p. 153, Pl. XXIII, and pp. 270, 271.

that here appear on face *a*, partly perhaps of an ideographic character, the 'template' again occurs, flanked by triple groups of the tree sign, while on *b* we see decorative scrolls associated with the 'adze' and the 'trowel'.[1] It looks as if the Minoan prince to whom this exquisite signet refers did not disdain the titles of 'builder and decorator'.

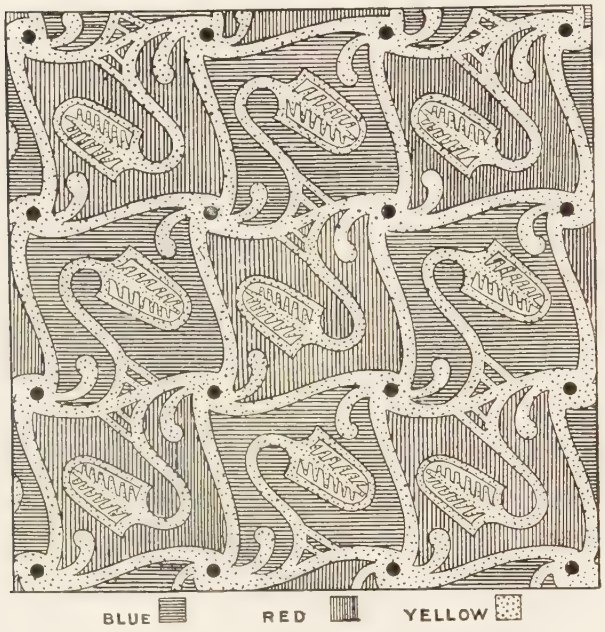


Fig. 114. Ceiling Pattern restored from Seal-type.

Fig. 115. M. M. II Bead-seal with 'Template' Adze and 'Trowel' Signs.

Suggestions of ceiling patterns in M.M.II polychrome designs.

The seal-types that seem to stand in such close relation to a class of painted ceilings belong to the acme of M. M. II art, and date from about the Nineteenth Century before our era. The fine contemporary polychrome ware—like the later 'Palace style'—continually illustrates the reflection of architectonic models. A good example is supplied by the Phaestos vase,[2] reproduced in Fig. 116,[3] which shows the characteristic quadruple **S**-pattern with floral designs in the intervals, in the one case derived from the Egyptian lotus motive,[4] in the other of a more naturalistic indigenous aspect.

[1] For these, see *Scripta Minoa*, i, p. 187, No. 18 and p. 189, No. 20.

[2] *P. of M.*, i, p. 257, Fig. 192, *b*. A coloured illustration is given by Pernier, *Mon. Ant.*, xiv, Pl. XXXV *b*.

[3] One of the floral sprays that had been much abraded is here completed.

[4] See *P. of M.*, i, p. 258. Dr. H. R. Hall, *The Relations of Aegaean with Egyptian Art* (*Journ. Egypt. Arch.*, 1914, p. 116), while recognizing the Egyptian character of the design connects it directly with scarab pat-

How naturally the polychrome design on this vase translates itself into a ceiling-pattern will be seen from Fig. 117 A.

It is clear, however, that by the close of the Middle and the beginning of the Late Minoan Age ceiling-patterns of more purely Egyptian type, with lotus sprays in the intervals of the scrolls, were generally in vogue in Minoan and Mycenaean Art. Examples from the Palace of Knossos are given below, and it is hardly necessary to cite the carved ceiling of the sepulchral chamber at Orchomenos. Eighteenth Dynasty types were now taken over in a literal manner. The decorative reaction, indeed, is at this time so strong that it is often difficult to say where the Egyptian elements end and the Minoan or Mycenaean begin. To this common style it seems best to apply the term 'Egypto-Minoan'. But the ornamental framework itself, in spite of its Nilotic excrescences, goes back in Crete, as we have seen, to a curvilinear system already in vogue before the close of the Early Minoan Age.

'Egypto-Minoan' style.

FIG. 116. POLYCHROME VASE FROM PHAESTOS (DESIGN COMPLETED).

In the case of the patterns of Egyptian ceilings, though the examples are often late, the tradition of the simpler Cretan system such as we already see it on the ivory seals and cones of the Mesarà ossuaries is still continually traceable. A ceiling of the Tomb of the scribe Amenemhēt shows a simple pattern of interlocked S-scrolls.[1] At times we see little more than

Minoan tradition in Egyptian ceilings.

terns. In a pendant motive on another contemporary jar from Phaestos, *Mon. Ant.*, xiv, Pl. XXXIV, *a*, he sees the Egyptian motive of two lilies bound together with cut stalks, so frequent under the Old Kingdom, turned upside down.

[1] N. de G. Davies and A. H. Gardiner, *T. of Amenemhēt*, Pl. XXXII, *c*. Cf. Champollion,

linked scrolls that might be mere hooks, but are more curved at the ends,[1] and even elaborate quadruple motives are clearly derived from C-coils, arranged as in Fig. 110 A, *k*, *l*, above.[2]

The spiraliform and other curvilinear patterns introduced from Crete to Egypt by Minoan trade connexions appear in Egyptian ceiling patterns almost as soon as on cylinders and scarabs. It must be remarked, moreover, that, although count must always be taken of the influence of small on larger artistic products, it seems possible that in part, at least, these ceiling designs were affected by Minoan models of another class, such as embroidered cloths and rugs or worked or painted sails of their ships similar to those seen on Egyptian examples. It is noteworthy that under the New Empire the cloths over the boat cabins present fine spiraliform patterns,[3] and the Egyptian sails were themselves richly decorated in a like manner.

Possible influence of cloths and sails.

FIG. 117 A. CEILING PATTERN RECONSTITUTED FROM THE M. M. II POLYCHROME VASE (FIG. 116, ABOVE).

That this fashion was shared by the sails of the Minoan ships may be perhaps gathered from an intaglio design on a 'flattened cylinder' of haematite, shown below (p. 243, Fig. 140), representing the greater part of a ship under full sail. This was found on or near the site of the Harbour Town of Knossos,[4] and seems to be of M. M. III date. The sail here, in fact, is distinctly divided into quadruple spaces with globules at their

Mons., &c., t. iv, 437, *ter*; and G. Jéquier, *Décoration égyptienne; Plafonds*, &c., No. 30, Pl. XVII, incorrectly.

[1] Petrie, *Egyptian Decorative Art*, p. 32, No. 53 (after Prisse).

[2] Petrie has rightly insisted on the important part played by what he terms C links in these Egyptian patterns (*op. cit.*, pp. 34, 35).

[3] Cf. Petrie, *Egyptian Decorative Art*, p. 29 seqq. The 'quadruple spiral' is illustrated in its simplest form on a boat cover of Rameses IV's time, *op. cit.*, p. 31; Champollion, *Monuments*, cclv.

[4] Obtained by me at Candia in 1899. Two uncertain scrolls appear in front of the vessel. The whole design is a good deal abraded.

corners, and as clearly designed as is possible in such minute work to indicate a linked spiral decoration. That Minoan textile fabrics for ordinary use were embroidered with connected spiral patterns is, at a somewhat later epoch, indicated by the loincloths of some of the Minoans bearing offerings to Thothmes III or his Vizier, as shown in the Tomb of Men-Kheper-ré-senb.[1]

Whether or not the patterns of Minoan cloths and sails influenced those of Egyptian ceilings, it would appear that these or allied products of Egyptian textile art had a powerful reaction on Minoan decorative designs.

Great as was the influence of the Nile Valley on the Cretan arts and crafts from Late Pre-dynastic times onwards, it would be, nevertheless, difficult to point to any evidence of an artistic reaction of Minoan Crete on Egypt earlier than the beginning of the Middle Empire. The spiraliform class of decoration, as already noted, comes in at that time with a rush, and is a new and sudden introduction into Egyptian art.[2]

Minoan patterns linked on scarabs with Nilotic features.

Unquestionably the main source of this new decorative element in Egypt was seal-stones, and its most intensive manifestation is to be seen on the scrolls that now invade cylinders and the newly introduced scarab type of seals. It may be also observed, as regards the scarabs, that this class of seals—being itself an innovation of the beginning of the Middle Kingdom—offered a free field, unhampered by tradition, for the spread of the novel fashion in decoration. These scarab types were at the same time early linked with Nilotic features such as the lotus sprays[3] and with amuletic symbols such as the *waz* or papyrus wand, the *ankh* or life sign, the *nefer*, and *ra* or sun. The new type of decoration, however, begins from the first to appear in Egypt on other objects besides scarabs.[4]

[1] E. g. the figure holding a characteristic ox-head rhyton (W. Max Müller, *Egyptological Researches*, ii, Pl. VIII and cf. Pl. XX).

[2] H. R. Hall, *The Relations of Aegean with Egyptian Art* (*Journ. of Egypt. Arch.*, 1914, p. 115). Cf. W. Max Müller, *Egyptological Researches*, ii (1910), p. 6 : 'Petrie's statement about the sudden appearance of connected scrolls (*Egyptian Decorative Art*, pp. 20, 21) can now be given more emphatically.'

[3] Already on a beautiful Twelfth Dynasty scarab of the Turin Museum (Petrie, *Egyptian Decorative Art*, p. 22, Fig. 18) we see lotus flowers and buds springing from the running spiral border.

[4] It is found already on the base of a statuette of a monarch of the name of Mentuhotep, attributed to the Eleventh Dynasty (*c.* 2160–2000 B. C.). So, too, as a motive of ceiling decoration, we see it already in the Tomb of Hepseba, of Senusert (Sesostris) I's time, *c.* 1980–1939 B. C., at Assiût, where simple spiral scrolls form heart-shaped canopies for palmettes. A small detail of this is given by Wilkinson, *Ancient Egyptians*, i, Pl. VIII. 7, but with wrong colouring (cf. Newberry, *Scarabs*, p. 81, n. 3). In this connexion, too, it may be observed that the interlocked S-scroll appears as a border on an exquisitely worked scarab surrounding the cartouche of the same king (P. E. Newberry, *op. cit.*, p. 80, Fig. 82).

So far as the curvilinear and spiraliform patterns found on these are concerned, the prototypes are most naturally to be sought *in pari materia*, and are to be found in the sphragistic repertory of curvilinear patterns already, as we have seen, evolved in Crete by the close of the Early Minoan Age. This was reinforced by the fully developed spiraliform system which had at this time a considerable vogue in the Aegean, though originating from its farther shores. But the use of seal-stones, such a prolific source of decorative design, was still generally unknown in the Cyclades and Aegean world and it was, as shown above, Minoan Crete that supplied the models from which the Egyptian engravers drew. Hence the great importance of the evidence now before us—largely as the result of the exploration of the Mesarà *tholoi*—of the evolution of an independent curvilinear system on the ivory and steatite seals of Early Minoan Crete. Here, too, we find the true prototypes of the ornamental scrolls on the embossed plates and sculptured reliefs of Mycenae that have been attributed to some vague 'Northern' or 'Trojan' source.

[1] W. Max Müller, *Egyptological Researches*, ii, p. 7. In the collection of Mr. Theo. M. Davis, Newport, R.I.

Fig. 117 b. Steatite Pot with Minoan Curvilinear Patterns, Cerigo (Kythera). ($\frac{7}{10}$)

§ 41. South-East Polychrome Deposit (M. M. II *a*) at Knossos and Parallel Find at Harageh: Prototype of Ostrich-egg 'Rhytons'.

Cretan intercourse with Middle Kingdom Egypt illustrated by imported polychrome pottery; Abydos pot with Cylinders of Senusert II and Amenemhat III; Both Cretan and Helladic sherds found in settlement at Kahun; M. M. II and III sherds at Aegina; M. M. II a pottery in deposit of Senusert II's time (c. 1890 B. C.) *at Harageh; Contemporary ceramic hoard beneath M. M. III houses by S.E. corner of Palace, Knossos; 'Racquet and ball' motive here seen, also recurs in Harageh deposit; Valuable chronological datum; Origin of pattern from tangential looped disks already seen on Early Minoan seal-stones; South-East Polychrome deposit also includes bowls of finest egg-shell class; Contemporary with vases of Royal Pottery Stores; Diorite monument of User—a personal offering of priestly Egyptian personage resident in Palace, Knossos; Egyptian apprenticeship of Minoan lapidaries; XIth–XIIth Ostrich-egg flask from tomb at Abydos; Prototype of a class of Minoan 'rhytons'; Prehistoric use of ostrich-egg vessels in North Africa; Examples of such still in use in Soudan—their magical properties; Minoan ostrich-egg 'rhytons' and their derivatives—Comparative Table.*

Imported Cretan polychrome ware in Egypt: Abydos vase.

Finally, this intensive Cretan influence on Middle Kingdom Egypt, to which the 'Great South Road' and its maritime outlet at Komò must have done so much to foment, has left its record, as already noted, in the remains of imported vessels of the M. M. II polychrome fabric on more than one Egyptian site. Of these the 'hole-mouthed' bridge-spouted pot from the Abydos cemetery,[1] which it has been possible to restore in its entirety, is specially important from the chronological data that it supplies in connexion with a characteristic example of the M. M. II *b* ceramic style. It was found together with Twelfth Dynasty objects, including two glazed steatite cylinders of Sesostris (Senusert II) and Amenemhat III,[2] indicating a date not later than about 1800 B. C. As quite unwarranted doubts have been

[1] See *P. of M.*, i, p. 267 seqq., Fig. 199 and Suppl. Pl. IV.

[2] Owing to bad engraving and the filling with glaze this cylinder is extremely illegible. It was at first referred to Amenemhat III (see vol. i, p. 268) as sole ruler, but Professor F. Ll. Griffith inclines to recognize the associated cartouches of Senusert II and Amenemhat III. This combination, he adds, is not uncommon.

expressed on the subject,[1] the development of that of Senusert II is given in Fig. 118. Though the engraving is roughly executed, the names *Kha-Kheper-ra-Sen-usert* are clearly traceable.

Cylinder of Senusert.

Fig. 118. Impression of Cylinder with Cartouche of Senusert II: Abydos Tomb.

Cretan workmen for his Pyramid.

In addition to the Abydos vase, the discovery has already been mentioned[2] of numerous sherds of mature M. M. II fabric from the workmen's settlement in the Fayûm at Kahun near the Pyramid built by Senusert II. These settlements were undoubtedly designed as the quarters for the workmen engaged in the construction of his Pyramid, but they seem to have continued in existence for some time after its completion. These sherds, which certainly point to the presence of Cretan workmen and skilled artisans, have now been more fully published by Mr. Forsdyke in the first volume of the British Museum Vase Catalogue, and it is possible to arrive at a more intimate knowledge of their fabric and associations.[3] As a whole they belong

[1] Professor von Bissing's attempt to refer, in part at least, to a New Empire date the objects found in the tomb is at variance with the evidence of their discoverer. Professor Garstang, a careful observer, notes that, though the tomb was divided into six sections, the contents were of a uniform Twelfth Dynasty character (*Liv. Anns.*, ii (1913), p. 108). The turquoise tint of the faïence objects and beads is of the usual Twelfth Dynasty tone and the objects themselves can be seen from an examination of the Petrie collection in the University College Museum, including the hedgehog and the gourd with constricted neck, are of forms that occur at that epoch. See, too, O. Rubensohn (*Ath. Mitth.*, xlii (1917), p. 91 and Fig. 103). Professor von Bissing, however, whose objections to the Twelfth Dynasty dating of the find (*Der Antheil der ägyptischen Kunst am Kunstleben der Völker*) had been sufficiently refuted by Dr. H. R. Hall (*Journ. of Egypt. Arch.*, i, p. 228), returns to the charge with the gratuitous suggestion that the cylinders, being 'amulets', might have been placed in a later interment (quoted by Dr. G. Karo, *Orient. Literatur-Zeitung*, 1922, p. 388). Egyptologists specially competent in this matter, such as Professors Petrie and Newberry, assure me that cylinders are never found in later graves. The latter writes, 'I do not know of any case of Twelfth Dynasty cylinder seals being imitated at a later date and placed as amulets in later graves'. Dr. Pieper (cited in *Ath. Mitth.*, loc. cit., p. 32) corroborates this statement, contrasting the case of cylinders with that of scarabs.

[2] *P. of M.*, i, p. 290, and pp. 266, 267, Fig. 198, *c*.

[3] See Mr. E. J. Forsdyke's observations, *op. cit.*, pp. 91–4 and Fig. 113.

to a mature M. M. II phase, and illustrate familiar polychrome forms such as the 'bridge-spouted' jars and bowls. In several cases they are practically identical with fabrics from the Palace site at Knossos.[1]

But, in addition to this class of imported Minoan pottery, a series of specimens came to light imitating the shapes and decoration of the Cretan polychrome class, but made of the coarse local Egyptian clay.[2] We have here unquestionably the work of Cretan potters belonging to this Egyptian settlement.

Also 'Helladic' Pottery at Kahun.

What is of quite exceptional importance is the fact that, together with imported Minoan sherds, were others of quite different fabric with black and red linear decoration on a polished buff ground, fitting on, as Mr. E. J. Forsdyke has pointed out, to a Helladic class best represented by specimens from the Argolid.[3] It is possible that the Minoan craft that brought the Cretan wares to Egypt in the great days of the Middle Kingdom also traded with some port, such as Nauplia, of Mainland Greece. Evidence, indeed, has now come to light of the occurrence of imported polychrome sherds, M. M. II as well as M. M. III, in some of the later chambers of the Helladic stronghold, recently excavated by Dr. Welter, in connexion with the German Institute at Athens, beneath the Aphrodite temple of Aegina.[4]

M. M. II Sherds at Aegina.

Minoan Sherds of Senusert II's time at Harageh.

The occurrence of Minoan sherds at Kahun has since been supplemented by a similar discovery made by Mr. R. Engelbach at the neighbouring site of Harageh,[5] occupied by a settlement connected like the other with the construction of Senusert II's Pyramid, but of a somewhat more well-to-do character than the workmen's town of Kahun. Minoan fragments were found in a deposit, about a foot deep, of town rubbish that had been dumped down between three of the cemeteries (A, C 2, C 3) and entirely covering a fourth (C). The cemetery itself, outside this area, contained

[1] E. g. A. 548 with the textile pattern inherited from Neolithic times; A. 549 showing radiating petals presenting an exact parallel with a Knossian bowl; A. 552 with the familiar internal mottlings; A. 566 resembling pottery from 'Loom-Weight Area'.

[2] See Forsdyke, *op. cit.*, pp. 93, 94, Nos. A. 562–6.

[3] See Forsdyke, *B. M. Cat.*, *Vases*, i, p. 50, A. 278–9. One piece (A. 587 : *Kahun*, Pl. I, 1 ; *J. H. S.*, xi, Pl. XIV, 8) in Mr. Forsdyke's opinion may be of Anatolian fabric. It shows polychrome decoration, but the colours are not fixed. It is a 'painted bucchero' and 'both form and technique point to a place of origin in Asia Minor'.

[4] P. Wolters, *Gnomon*, 1. H. i (1925), p. 47. The imported pottery is there referred to as 'Kamaresgeschirr'. Thanks to the kindness of the finder, Dr. Welter, I had an opportunity of examining the sherds on the spot in 1925.

[5] R. Engelbach, *Harageh* (British School of Archaeology in Egypt, Twentieth Year, 1923). The discoveries themselves date from 1914, the publication having been delayed by the War.

FIG. 119. M. M. II *a* PAINTED SHERDS FROM HARAGEH (*a*–*g*); *h*, FROM KAHUN.

objects of Twelfth Dynasty date from Senusert III to Amenemhat III.[1] The above-mentioned deposit, on the other hand, did not, in the excavator's opinion, extend beyond the reign of Senusert II[2]—*c.* 1906–1888 B. C.—and contained, indeed, a limestone block inscribed with his name (*Kha-Kheper-Ra*). The lower term of the deposit in which these sherds occurred would therefore hardly be later than *c.* 1888 B. C.

A series of Minoan polychrome sherds from the Harageh deposit is illustrated for the first time[3] in Fig. 119, and is briefly described in a supplementary note to this Section. As contrasted with those of Kahun, they correspond very well with the more precise and restricted chronological limits of the deposit in which they lay as well as with the superior position of the original owners of the vessels. They present both a greater homogeneity in style and a higher average level. None of them comes down as low in date as some of the Kahun specimens, and the local imitative class is wanting. Fig. 119, *a*, of the mature 'barbotine' class, with S-shaped scrolls connecting its knobs as on an example of this from the Palace site at Knossos, may, like the latter, be ascribed to the closing phase of M. M. II *a*. Parts of two exceptionally elaborate vases occur. Fig. 119, *c* 1, 2, is apparently part of a spout of remarkable form with a decorative imitation of a rivet head, pointing to an original in precious metal. The white, red-spotted foliation on this recalls the foliate band on the bridge-spouted jar from Knossos, already illustrated, as supplying a near parallel to the Abydos vase.[4] Fig. 119, *f* 1, 2, is part of an utensil of an unique character, perhaps some kind of filter, with a hollow stem, terminating in a perforated bulb so as to strain the liquid poured in through it. Above the bulb was a broad collar as if to rest the filler on the rim of a jar.

Comparisons with Knossos M.M. II *a*.

Fig. 119, *d*, bears an impressed pattern standing in close relation to that seen on part of an embossed polychrome cup of 'egg-shell' fabric from the Royal Pottery Stores at Knossos (see Fig. 120, *a*, *b*).[5] On the fragment, *g*, may be discerned part of the 'tennis bat and ball' pattern, also found on a bowl of the M. M. II *a* 'egg-shell' class (Coloured Pl. IX), and which recurs on the splendid polychrome jar brought to light in the excavations of 1922

'Racquet and ball' pattern.

[1] *Harageh*, p. 10: 'With the exception of about twenty-five tombs, all the tombs could well be within the limits of the reigns from Senusert III to Amenemhêt III.'

[2] *Op. cit.*, p. 11: 'Had the deposit covered the period of Senusert III and Amenemhêt III, some cylinders or objects would surely have been found, as the names of these kings are very common on small objects.'

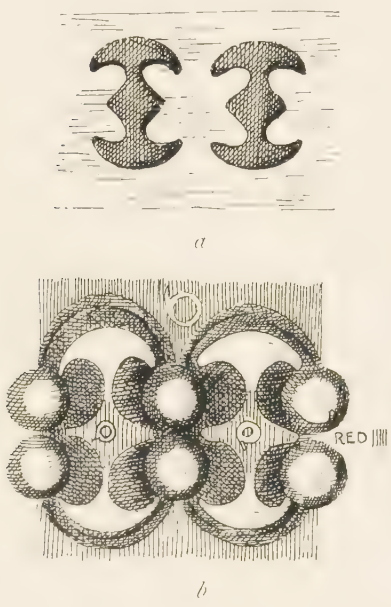
[3] For a summary description of these Minoan fragments see Suppl. Note, end of Section, p. 228. They are referred to in *Harageh* (p. 10) but not figured or described.

[4] *P. of M.*, i, p. 268, Fig. 199, *e*.

[5] Compare, too, the egg-shell cup, *P. of M.*, i, p. 241, Fig. 181.

outside the S.E. angle of the Palace, and illustrated below on the same Coloured Plate IX. A development of the pattern on the Harageh fragment is there introduced for comparison.

The cumulative evidence supplied by a minute examination of the Minoan polychrome sherds, both from Harageh and Kahun, undoubtedly points to Knossos as their principal source, though some show affinities with specimens from Phaestos. Their paste as revealed by the sections of the fragments is, moreover, indistinguishable from that of the Knossian fabrics except in one recurring feature. This is the slightly more brownish tint of the clay perceptible in the fragments from both sites. But this may admit of a very natural explanation, the effect, namely, of the Egyptian sun acting through long ages on superficial strata.[1] So far as the ceramic products of other Cretan regions are known, the finer class of M. M. II vases represented in these Egyptian deposits must, in any case, be referred to the Central region of Crete, traversed by the transit route above described.[2]



a

b

FIG. 120. *a*, FRAGMENT FROM HARAGEH (COMPLETED); *b*, EMBOSSED ORNAMENT ON POLYCHROME BOWL OF EGG-SHELL TYPE, KNOSSOS.

It will be seen that these Harageh sherds stand in a very close relation to some fresh comparative material, representing the finest M. M. II class of polychrome ware, supplied by a recent find at Knossos. The discovery was due to the supplementary excavations about the South-East Palace angle recorded below,[3] but a description of this ceramic deposit may be conveniently given in this place.

Discovery of deposit of polychrome ware at

The South-East corner of the Palace, as will be shown in a succeeding Section, was the scene of a great overthrow, primarily due, we may infer, to a seismic shock towards the close of M. M. III, and the results of which were aggravated by the existence at this point—unbeknown apparently to the

[1] This suggestion is due to Dr. Mackenzie. Compare the extreme browning of flint implements long exposed on the desert surface.

[2] Good M. M. II polychrome pottery is very rare in Eastern Crete where the M. M. I style had a tendency to prolong itself, uninfluenced by the great palatial fabrics of the Central region. As to Western Crete the evidence is almost totally deficient, though some Middle Minoan pottery has been found in caves of the Diktynnaean Promontory.

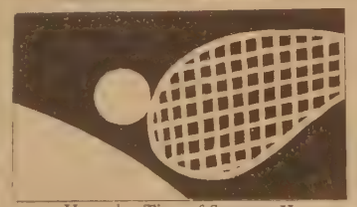
[3] P. 296 seqq.

a

b

c 1

c 2



g, Harageh: Time of Senusert II. (1906–1888 B.C.)

e

f

d 2

d 1

POLYCHROME POTTERY M. M. II FROM KNOSSOS

a, *b*, *d–f*, from S.E. Palace Angle; *c* 1–2, Royal Pottery Stores. Inset, *g*, Minoan Sherd from Harageh, Fayûm. (See p. 210.)

builders—of a subterranean quarry. Two small houses, dating from the Third Middle Minoan Period, lying immediately outside the Palace wall, were in this way overthrown, which themselves were chock full of ceramic and other remains of that Period. In examining these, however, the lower parts of the walls of an older house came to light beneath that to the West, containing, amongst other earlier remains, a remarkable series of fragments of poly-

S.E. Palace angle, Knossos.

a *b* *c*

FIG. 121. 'PILGRIM'S FLASKS': *a*, S.E. POLYCHROME DEPOSIT, KNOSSOS (M. M. II *a*); *b*, ZAKRO (M. M. III *a*); *c*, PALAIKASTRO (L. M. I *a*).

chrome vases belonging to the fully developed early phase (*a*) of M. M. II. These lay in a kind of cell, enclosed in these earlier structures.

Important polychrome deposit.

It has been possible to reconstitute the fine jar (Coloured Pl. IX),[1] with a spouted rim and handles. As now restored,[2] it must take rank among the noblest specimens of Minoan polychrome decoration. Its height is 75 cm. The hole-mouthed bridge-spouted pot, which anticipates a type well known in M. M. III, and the 'pilgrim's flask' (Fig. 121, *a*) were found in a practically perfect condition. Each face of the latter is divided by

S.E. polychrome deposit.

[1] Thanks to the great skill and patience of Kyrios Manolis Salustros, *formatore* of the Candia Museum. For the drawings of this and the other vases of the deposit I am indebted to Mr. Piet de Jong.

[2] See *P. of M.*, i, p. 582 seqq. Some of these show the spout in an atrophied form, internally blocked, or only represented by a mere knob.

a 'swastika' design, the scarlet lines of which are carried round the circumference so that the two sides are united (see Fig. 121, *a*), and each presents four white scrolls within the intervals of the winding cross. Good examples of the survival of this type of flask in painted pottery are given in Fig. 121, *b*. A very beautiful specimen decorated with marine objects, of L. M. I *b* date, will be described below.

Work of same potters' oven.

Taken together, we have here one of the most important groups of mature polychrome vessels that have come to light on the site of Knossos. From the parallelism, moreover, in decorative features, such as the coiling sprays, the rosettes with a red centre, the similar alternation of red and white on the black ground, and the identity of technique, this group of vessels may well be thought to have issued from the same potter's oven.

Egg-shell specimens: M.M. II *a*

With them, too, must be placed the 'egg-shell' bowl, restored from fragments found in the 'Royal Pottery Stores' on the North-East slope of the Palace site, which so closely reproduces the 'tennis racquet' pattern, with fine spiraliform attachments as on the large jar.

Contemporary with 'egg-shell' ware of Royal Pottery Stores.

The correspondence in this case is of crucial importance, since the fine texture of this bowl shows that it belongs to the class of egg-shell ware, which does not survive the acme of M. M. II polychromy. It is also to be noted that in what seems to have been an analogous and clearly contemporary stratum beneath the neighbouring M. M. III house, immediately East of that in which the above deposit was found, remains occurred of two characteristic egg-shell cups (Coloured Pl. IX, *a* and *b*; see below, Figs. 124, 126). The jar with the 'tennis racquet' and its companions may therefore claim a place within at least the lower limits of the earlier phase, *a*, of the M. M. II ceramic style. This, it will be seen, fits in with a further chronological equation, supplied by a sherd from the deposit brought to light at Harageh in Egypt.

The rosettes on the polychrome jar and pot here illustrated, though they present the same central red disk, are appreciably finer in design and presumably earlier than those on the vessel from the Abydos tomb,[1] dated by the inscribed cylinders it contained to the time of Amenemhat III (*c.* 1849–1801 B. C.). On the other hand, we see that the most distinctive decorative feature of the jar, the 'tennis racquet and ball' pattern, finds an exact parallel—even to the relative position of the ball—in the fragment (slightly developed in the inset of Pl. IX) from the Harageh deposit which is approximately dated, as has been shown above,[2] to the reign of Senusert II (*c.* 1906–1888 B. C.). The occurrence of the same device on the

'Racquet and ball' pattern: parallel from Harageh.

[1] *P. of M.*, i, p. 268, Fig. 199, *a*.

[2] p. 213.

large jar and on the bowl (Pl. IX, *c* 1, *c* 2) suggests that we have here the evidence of a fashion in ceramic design which may be regarded as a peculiar mark of Knossian fabric at this epoch. At the same time the absolute correspondence of the Harageh fragment seems to justify the conclusion that the vessel to which it belonged had been an actual import from Knossos. It will be seen that a similar suggestion of origin is supplied by the impressed design on the fragment illustrated in Fig. 119, *a*.

This 'racquet and ball' pattern on pottery itself affords another example of the far-reaching influence of early seal-types. A favourite device on these is one or more disks or circles from which springs a tangential loop. Several examples of these, probably not later in date than E. M. III, occur on ivory signets from the primitive ossuaries of Mesarà (Fig. 122, *a*, *c*)[1] and a good specimen of the two-looped form (Fig. 122, *b*) is supplied by an incised ornament, inlaid with red, on a blue steatite bowl of ritual character found in the *sacellum* off the West Court of the First Palace at Phaestos.[2]

Origin from tangential loops.

a *b* *c*

FIG. 122. LOOP AND DISK PATTERNS (*a*, *c*, *THOLOS* OSSUARIES, MESARÀ; *b*, ON RITUAL STONE VESSEL, PHAESTOS).

Sometimes the revolving 'loops' are multiple, as on the steatite lentoid (Fig. 123, *a*),[3] and it is interesting to observe that, here again, an early seal pattern of Minoan Crete was the prototype of embossed designs on the gold plates of the Mycenae Tombs. The medallion (Fig. 123, *b*), with a similar design more symmetrically rendered, is taken from a diadem found in the Fifth Shaft Grave.[4] In the case of the loops on the seals we regularly find a hatched decoration, sometimes crossed, and anticipating that of the 'tennis racquet' on the polychrome vases.

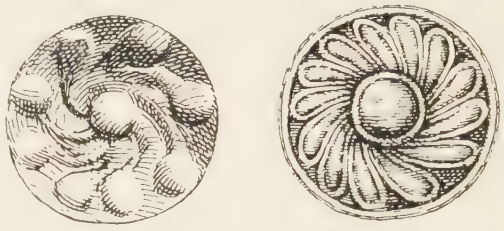
[1] Fig. 122, *a* and *c*, are from Platanos, Xanthudides, *Vaulted Tombs of Mesarà*, Pl. XV, 1074 (*a*), on an ivory 'cylinder', and Pl. XIII, 1341 (*c*) on a perforated ivory seal of semicircular profile. Cf., too, Pl. VIII, 680, Kalathianà, and Pl. XIII, 1051, Platanos. Dr. Xanthudides (adopting a suggestion of Dr. Hadzidakis) suggests that these scrolls are derived from figures of scorpions. They seem, however, to have a simple geometrical origin.

[2] L. Pernier, *Mon. Ant.*, xiv, pp. 480, 481, Fig. 87 and cf. p. 446 and Fig. 60, 3.

[3] Xanthudides, Ἐφ. Ἀρχ., 1907, Pl. VIII, 137. The globular form of some of the loops here is due to over use of the 'blunt point' by the engraver.

[4] Schliemann, *Mycenae*, p. 229, Fig. 337.

In the ceramic versions there is to be noted a phenomenon exactly parallel to that which has been already pointed out in the case of certain outgrowths of the 'quadruple spiral' pattern, where the disks on which the curvilinear framework depended have become detached from it. On the vases the 'bat'-like excrescences now spring from spiral coils, but the original disks survive in the field. They are, indeed, placed beside the latticed loops as if there were in truth some playful allusion to bat and ball.



a *b*

Fig. 123. *a*, Steatite Lentoid, Crete; *b*, Embossed Gold Medallion of Diadem, Vth Shaft Grave, Mycenae.

Derivatives of tangential loops at Mycenae.

The ceramic history, indeed, of this pattern can be traced to a still later date. The disks with triple tangential loops, as they occur on vases of M. M. III fabric, have already been illustrated in the first volume of this work,[1] and a specimen is reproduced in Fig. 125, below. The 'racquet' itself, with its cross-hatching, is also seen on L. M. I cups from Crete and Mycenae.

Egg-shell bowls from S.E. deposit.

In the earlier house remains beneath the M. M. III 'House of the Fallen Blocks', contemporary with and immediately East of those containing the deposit described above, there came to light fragments of vases of egg-shell ware, corresponding with those of the 'Royal Pottery Stores' described in the first volume of this work and representing the first phase, *a*, of the M. M. II polychrome style.[2] The upper part of a bowl, here reproduced in Fig. 124, and repeated in the Coloured Plate IX, shows within it a bizarre motive seemingly derived from some primitive textile rendering of an animal or bird. This vessel also displays on its outer rim a singular design suggestive of white lace-work with red loop attachments. The tradition of this delicate texture in vase decoration survived to a much later period and again becomes fashionable in the closing phase of M. M. III. An illustration already taken from a jug found at Zakro is here reproduced,[3] where again the ornament certainly conveys the impression of lace rather than of ordinary embroidery (Fig. 125). This vase at the same time affords a good later parallel for the triple coil and 'tennis racquet' patterns illustrated

[1] *P. of M.*, i, p. 611, Fig. 449, *a*, *b*. Compare, too, the 'bladder' and spiral, p. 610, Fig. 448.

[2] *Ib.*, p. 240 seqq.

[3] See *P. of M.*, i, p. 611, Fig. 449, *b* (from R. M. Dawkins, *Pottery from Zakro* (*J. H. S.*, xxiii, p. 253, Fig. 18).

above. The cup (Pl. IX, *a*), of the finest 'egg-shell' fabric,[1] is exquisitely decorated with white feather-like objects displayed on the black ground between waving, crimson bands (Fig. 126). At every turn we are struck with the beauty and variety of the designs, representing the fine flower of the Minoan polychrome style.

Chronological place of S.E. deposit established by Harageh.

This remarkable hoard of painted vessels—here taken to include those from house foundations immediately West—may be conveniently referred to as the 'South-East polychrome deposit' and, whether we regard the excellence of the decorative style or the definite chronological indication that it supplies, it must claim a high place among the ceramic finds of

FIG. 124. UPPER PART OF POLYCHROME BOWL, KNOSSOS.

Knossos. Stratigraphically, as we have seen, it is on the same horizon as the Royal Pottery Stores, containing the finest known specimens of the Minoan 'egg-shell' ware that represents the acme of the M. M. II *a* polychrome style. We may infer from this, moreover, that it marks some widespread destruction in the Palace and its borders at that epoch, which, thanks to the Harageh evidence, we may now place approximately at 1890 B. C. This destruction, whatever may have been its cause, long anticipated the final catastrophe of the M. M. II cultural phase, of which we have a good landmark in the contents of the Loom-Weight Area presenting, from the potter's point of view, a distinct inferiority in fabric. Already, indeed, by the date of the 'Abydos Vase', which may take us to the latter part of the nineteenth century B. C., we trace a certain falling off in the decorative style.

The counterpart to the appearance in Twelfth Dynasty Egyptian settlements of polychrome pottery, some of which we may legitimately conclude to have been of M. M. II Knossian fabric, is to be seen in the discovery of the diorite monument of User, of Middle Empire date, in an M. M. II deposit of the Palace of Knossos. This discovery, described in

[1] Compare an egg-shell cup with similar waved decoration from Palaikastro (R. M. Dawkins, *Suppl. on Palaikastro*, Pt. I, p. 16, Fig. 10).

Statue of User in Palace, Knossos.

the previous volume,[1] like the finding of the somewhat later inscribed lid of the great Hyksos Pharaoh, Khyan,[2] again emphasizes the fact that, as in the case of the imported stone vessels from the earlier strata, it is on this site alone, though lying on the Northern coast of the Island, that objects of Egyptian fabric have occurred in association with Minoan remains of palatial age. Once more we may be allowed to trace the influence of the transit route from the emporium on the Libyan Sea in securing the accessibility of the chief Minoan centre from the mouths of the Nile.

Fig. 125. M. M. III *b* Jug, Zakro.

Fig. 126. Feather-like Sprays on 'Egg-shell' Cup.

Dedicated by resident Egyptian.

As stated above, the diorite statue in question represents a personage of the name of User, 'born of the devoted Sat-Hathor' and accompanied by priestly epithets, who seems to have been a native of the Tenth Aphroditopolite or Wazet Nome of Upper Egypt. The monument itself was found in the Central Court of the Palace, near the area occupied by the principal Palace sanctuary. It is important to note that it does not belong to the class of imported objects, combining artistic form with an utilitarian purpose, such as the diorite bowls or the *alabastra*. Neither, as Egyptologists assure me, does it belong to the sepulchral category. Rather it must be taken to be a personal offering of some Egyptian official of priestly rank, whose vocation had actually led him to reside within the Palace and who wished to leave a memorial of himself within its walls. It is possible that, like the later Wen Amon, who visited the Syrian coast to secure cedar-wood for his temple at Thebes,[3] this functionary had come to Crete as the business representative of some Egyptian sanctuary. An interesting contemporary parallel to this discovery has been now supplied by the statuette of black granite, found at Adana in Asia Minor.[4] It represents a kneeling

Parallel dedication at Adana.

[1] *P. of M.*, p. 286 seqq. and Fig. 220.

[2] *Ib.*, p. 419 seqq. and Fig. 304, *b*.

[3] Golenischeff, *Rec. des Travaux*, xxi, 74 seqq.; W. Max Müller, *Mitth. d. Vorderasiatischen Ges.*, i (1900), p. 14 seqq.; Ermann, *Z. f. Aegypt. Sprache*, xxxviii (1900), pp. 1–14 (cf. too, *Scripta Minoa*, i, pp. 79, 80; and H. R. Hall, *Hist. of the Near East*, 1912, pp. 393, 394).

[4] *Bull. of the Metropolitan Museum of Art*, xvi (1921), pp. 208–10, *An Egyptian statuette from Asia Minor*, by H. E. W(inlock).

female figure, who appears in the inscription as 'The Nurse, Satsneferu', doubtless belonging to the household of some high personage. Both its character and inscription assign it to the Twelfth Dynasty, and its occurrence points to the existence of intimate relations of the Egypt of that date with the opposite Anatolian coast as well as with Crete.

Egyptian apprenticeship of Minoan lapidaries.

The skill of the lapidaries of the Minoan Palace in cutting vases according to Egyptian models out of such a hard substance as obsidian or volcanic glass, to which reference has been made, can only be explained on two hypotheses. Either they must have been apprenticed to skilled masters in the royal workshops of Egypt, or have had the advantage of such foreign instruction in Knossos itself. But the variety of this, called liparite, imported blocks of which we know were stored in the Palace,[1] was apparently unknown in Egypt, yet a fragment of a carinated bowl, found at Knossos and executed in this material,[2] is not distinguishable in fabric from the finest diorite bowls of similar type made in Egypt in the great days of the Early Kingdom. This particular class of liparite bowls, indeed, must have had a special vogue on this site, since, as has been shown, they continued to be imitated by the Middle Minoan potters.[3]

In view of these facts, it cannot be thought improbable that Egyptian masters in this craft, in which they so much excelled, may from time to time have accepted the invitation of the Minoan Priest-Kings to work in the *ateliers* such as we know existed within the Palace walls.

Apart from such possibilities, it is clear that the colonies of Cretan workmen, engaged—in virtue, it would seem, of extensive contracts—on the great building schemes of Senusert II and his successors, must have often brought back to the Island an acquired knowledge of Egyptian ideas and models.

XI–XII Dynasty ostrich-egg flask, Abydos.

An illustration of this is supplied by a remarkable and hitherto unregarded piece of evidence that has recently come to light, bearing on the ostrich-egg class of Minoan 'rhytons' or libation vases that makes its appearance about this time.[4] In one of the earlier groups of tombs, belonging to the Eleventh or the beginning of the Twelfth Dynasty in the

It was brought to light in a deep excavation from the foundations of a house by Mr. Montgomery of the local American Mission in 1882. Its height is 38·6 cm. ($15\frac{1}{4}$ inches).

[1] *P. of M.*, i, p. 23; and cf. Mosso, *Le origini della Civiltà Mediterranea*, p. 285, Fig. 180.

[2] *P. of M.*, i, pp. 86, 87 and Fig. 55, *c*, where a restored section of the bowl is given.

[3] Cf. *P. of M.*, i, pp. 178, 179, and Fig. 127, F, where a fragment of a carinated bowl is of exquisite fabric and the finest polish reproduced, showing in its white spots on the black ground a faithful imitation of this variety of volcanic glass.

[4] See *P. of M.*, i, pp. 594, 595 and Fig. 436, A.

same cemetery at Abydos[1] that produced the typical M. M. II polychrome pot, cited above, was found an Egyptian flask, consisting of an ostrich egg with a mouthpiece[2] of translucent bluish grey marble, a kind much in vogue during the Middle Kingdom (Fig. 127). The type of vessel is of exceptional interest since it supplies the undoubted prototype of a long series of Minoan 'rhytons'.

Fig. 127. Ostrich-egg Flask with Blue Marble Mouthpiece, XIth–XIIth Dynasty Grave, Abydos.

Prototype of class of Minoan 'rhytons'.

This ritual class of vessel, which consists of a receptacle with a smaller aperture below for the gradual trickling out of its contents, had, as we have seen,[3] already made its appearance in Crete at the very beginning of the Middle Minoan Age. It is now possible, as will be shown below,[4] to trace back the bull form of this sacral utensil to remote Sumerian prototypes, and both the animal subject and the acrobatic figures with which it is at times accompanied point to the operation of the strong oriental influence which set in at that epoch. In the case of the analogous though very dissimilar class of 'rhytons' in which an ostrich egg is the receptacle, it is clear that we have to deal with a type of vessel current in Middle Empire Egypt, and easily adapted to Minoan ritual ends by a perforation at the bottom of the shell. But in their origin the ostrich-egg vessels themselves can be shown to have a very ancient and extensive African range that goes back far beyond the beginnings of dynastic Egypt. It is a noteworthy fact that on the sites of Neolithic settlements, the remains of which extend across Sahara to the Niger, pottery is replaced by fragments of ostrich shells.[5] On the other

Widespread prehistoric use of ostrich-egg vessels in North Africa.

[1] The tomb, as Professor Garstang kindly informs me, has the reference No. 1113 A° 9. 'It was North of the old fort at Abydos, and its contents suggest clearly (as does its position) an Eleventh or early Twelfth Dynasty date.' The objects found with this in the tomb (vases, beads, &c.), while not specially noteworthy, were a homogeneous group as regards date. The contents of this tomb were acquired by the Musée Cinquantenaire at Brussels.

[2] The egg and the mouthpiece were separated when brought out, but were found by M. Capart to fit together perfectly. On seeing the vessel as completed by him in the Brussels Museum I at once recognized the progenitor of the ostrich-egg class of Minoan rhytons, and M. Capart kindly supplied me with a photograph from which Fig. 127 is taken. The ring below is merely placed there as a support.

[3] *P. of M.*, i, pp. 188–90 and Fig. 137.

[4] See below, p. 260 seqq.

[5] When at Batna, I had occasion to see the

hand, a common oval form of prehistoric Egyptian pots with the red and black burnished surface is derived from ostrich eggs.[1] Ostrich-egg vessels are in fact still widely used in the Central Soudan at the present day, and a specimen, the mouthpiece of which is formed in a separate piece, apparently of a wooden cylinder wound round with string, is given in Fig. 128.[2] Among the African natives magical qualities are in a special way attributed to such ostrich-egg receptacles, and it is possible that such primitive beliefs may have influenced the choice of these by the Minoans for religious ritual.

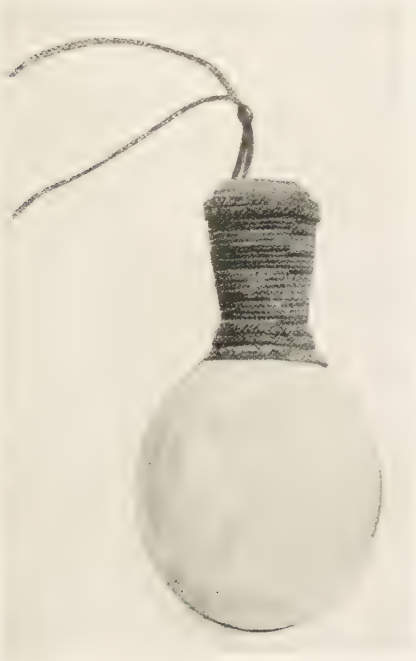


FIG. 128. MODERN OSTRICH-EGG FLASK WITH STRING MOUTHPIECE, CENTRAL SOUDAN.

Minoan adaptation of ostrich-egg flasks as ritual vessels.

The early adaptation at Knossos of the ostrich-egg type of vessel, such as we see in the Abydos specimen (Fig. 127), is illustrated by a clay copy in the finest M. M. II polychrome style,[3] where the white colour of the egg itself is reproduced and the gold plating round the upper and lower orifice indicated by orange decoration. Only the lower part of the mouthpiece was preserved, painted black and vermilion (see Fig. 129, 3).

Collection of the French Engineer, Monsieur H. Jus, who had explored a series of Neolithic sites on the caravan routes of the Algerian Sahara to Wargla. There was no pottery, but the flint arrow-heads, arm-rings (like prehistoric Nilotic types), and saws were found, as he informed me, in layers of broken ostrich eggs two or three inches thick. See, too, his *Stations préhistoriques de l'Oued Rir* (*Rev. d'Ethnographie*, 1887).

[1] The influence of the ostrich-egg type of vessel, Fig. 129. on the evolution of a later series of Egyptian stone vases is also evident. An oval example of greyish blue marble with a separate mouthpiece is in the Cairo Museum (Von Bissing, *Steingefässe*, 18166, Pl. III). From the material this must be assigned to the Middle Kingdom. A Twelfth Dynasty alabaster vase in the University College Museum is in one piece, but shows a line round the collar. In other specimens the trace of the original separation of the mouthpiece has disappeared, as in the case of two pear-shaped *alabastra* from the same Abydos grave that produced the M. M. II polychrome pot. We have here the origin of the baggy types of later *alabastra*, which in their turn influenced Minoan forms, both in alabaster and clay.

[2] *Prähistorische Zeitschrift*, i, p. 49 and Taf. XII, 1, where it is figured by Professor Schuchhardt among other types of primitive vessels. The vessel has a stopper. Professor

(*For remainder of notes see page 224.*)

Of early M. M. III date is the beautiful clay copy, also from Knossos (Fig. 129, 4),[1] the whole body of which is covered by a design, the main feature of which is a group of three palm trees with incised details, the whole possibly taken over from engraved decoration on an ostrich-egg original. More or less contemporary with this are the rhytons, formed of actual ostrich eggs from the Mycenae Shaft Graves, one of them (Fig. 129, 5) with a gold capping below and with a mouthpiece above significantly moulded in faïence of the Knossian Palace fabric.[2]

Evolution of ostrich-egg 'rhytons'. Derivative and hybrid forms.

The importance of this type as the starting-point in the evolution of a long series of Minoan rhyton shapes will be seen from the annexed comparative Table (Fig. 129). Amongst early specimens is the black steatite rhyton from Hagia Triada with the harvesters' rout—the most vivid composition that has come down to us from the Minoan World (Suppl. Pl. XVII).[3] Another of a lighter shade of the same material, parts of which were found in the Room of the Throne at Knossos, presenting an incomparably beautiful design of an octopus with tentacles coiling among rocks and corallines. A restored drawing of one side of this [4] is shown for the first time in Fig. 130 at the end of this Section, and supplies the finest example of the prototypes in relief work of the marine subjects taken over in the flat by the ceramic artists of the later phase (*b*) of the First Late Minoan Period.

The egg-shaped contour still prevails to the early part of the Late Minoan Age, and is illustrated by a fine example from a chamber tomb at Mycenae, recently excavated by the British School (Fig. 129, 9).[5] The receptacles then become more pointed below, and take a 'peg-top' shape, under the influence of a kind of handled 'filler' that appears in the closing M. M. III phase, and is illustrated by the specimen from Zakro (Fig. 129, 11),[6] showing a 'rock-work' surface covered with a black glaze. A little later, again—in L. M. I *b*—the form is modified and elongated in sympathy with

Schuchhardt obligingly informs me that this vessel was procured by Dr. Nachtigall from the Central Soudan in 1876. In the case of another ostrich-egg vessel, Taf. XII, 2, procured by Gerhard Rohlfs from the same region in 1865, the mouthpiece is further secured by a kind of string cradle round the egg. Both specimens are in the Museum für Völkerkunde at Berlin.

[3] Fragments of this are shown, *P. of M.*, i, Fig. 436, A (opp. p. 594).

[1] *P. of M.*, p. 594 and Fig. 438, c.

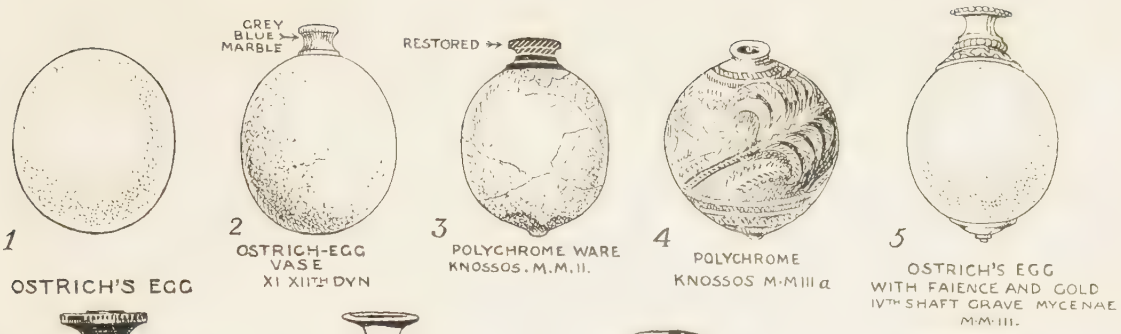
[2] *Loc. cit.*, Fig. 436, B and p. 594, n. 2. Previous to these observations the egg and its attachments had been wrongly interpreted as a pedestalled vase with a cover and was placed upside down in the Athens Museum.

[3] For sections of this see also above, p. 47, Fig. 22.

[4] By Monsieur E. Gilliéron, fils.

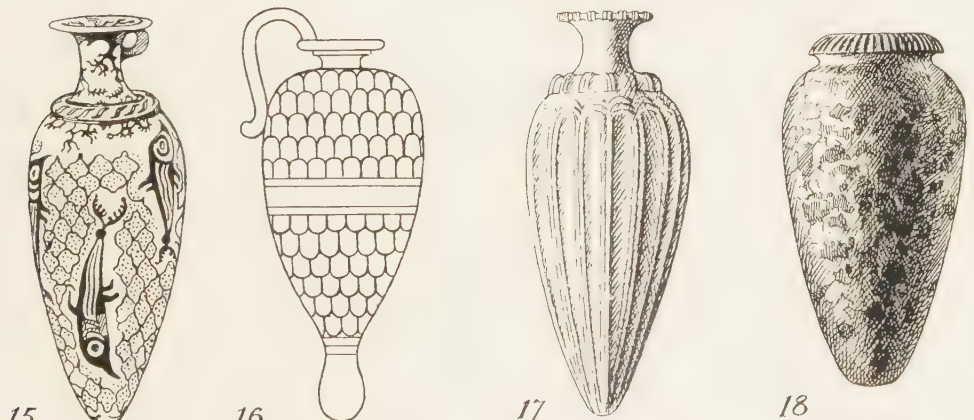
[5] See *Illustrated London News*, Feb. 24, 1923, p. 301.

[6] R. M. Dawkins, *J. H. S.*, xxiii (1903), p. 259 and Fig. 37. For the 'barnacle'-like surface compare the clay reliefs with marine objects from the 'Kouloura' at Knossos (*P. of M.*, i, p. 522, Fig. 380).



CLASS OF EARLIER OSTRICH-EGG RHYTONS

HYBRID 'PEG-TOP' CLASS



LATER ELONGATED AND PEARSHAPED CLASS

FIG. 129. MINOAN 'RHYTON' TYPES DERIVED FROM EGYPTIAN OSTRICH-EGG FLASK.

the tall funnel-shaped rhytons then in vogue (Fig. 129, 15–18), though something of the ovate tradition still survives.

It will be seen from the succession of types set forth in this Table, that in most cases the form of the particular vessel as much as the character of its decoration supplies a relative indication of date. In this connexion it is interesting to observe that an example of the elongated pear-shaped class illustrating the final evolution of the type (Fig. 129, 16) is seen in the hands of a Minoan from Keftiu-land, among the tributary figures of the Rekhmara Tomb, approximately dating from the middle of the fifteenth century B. C. Another of these tributaries bears the funnel-shaped rhyton of the class that seems to have reacted on the form of this last hybrid offshoot of the original ostrich egg. (See Suppl. Pl. XXV, 9.)

Intensive intercourse with Middle Kingdom Egypt, due to improved communications.

The manifold phenomena with which we have had to deal in this Section, pointing to an intensive intercourse with Middle Kingdom Egypt, themselves supply a cumulative proof of improved facilities of communications. The period involved, which corresponds with the earlier palatial phases of Knossos, is marked there by the construction of the mighty stepped approach that linked it with the bridge-head and by the viaduct of a built way, the course of which, as we have seen, it is still possible to trace at intervals across the whole central region of the Island to an emporium on the Libyan Sea. It seems probable that, already in a far remoter age, this had been preceded by some more primitive line of traffic, by which, indeed, the fine specimens of Egyptian lapidary art had been able to reach the site of Knossos from the close of the Neolithic Age onwards. It is legitimate to infer, however, that the construction of the roadway in the form that has survived to us, like that of the Stepped Portico to which it led, was due to the engineering enterprise of the epoch to which also belongs the foundation of the great Palace. Whatever Cretan or Aegean products had passed by this route in the earlier period on their way to the Nile Valley, it is now for the first time that we actually witness a Minoan reaction, such as that above described, on Egyptian decorative art, or find on Egyptian soil fine imported fabrics of the Minoan potters as well as the evidence of actual settlements of Cretan workmen. It is now, too, for the first time, that we obtain monumental proof in the 'Palace of Minos' itself of a personal relation with Egyptians of birth and position like User.

Reaction of Minoan on Egyptian art begins with M. M. I.

The result of the improved communications overland, doubtless reinforced by fresh developments in the art of navigation and by great harbour works, is in nothing more conspicuous than in the instantaneous effect produced on either side by this direct contact. The curvilinear patterns that

had grown up in Early Minoan Crete and in their mature stage absorbed elements from the spiraliform Aegean system react immediately, and in the most wholesale fashion, on the decorative art of the very beginning of the Twelfth Dynasty. So, too, we have indications that the Egyptian ceiling patterns that combined the imported curvilinear framework with indigenous adjuncts drawn from the lotus and papyrus were immediately imitated in the Cretan palaces. But of all the Nilotic forms thus taken over into the Minoan repertory, none, perhaps, is more significant than the ostrich-egg rhytons. It is indeed astonishing to find that a purely African form of vessel, at home in the Soudan and the Libyan Desert, should have been adapted to form what seems to have been a principal sacred utensil of Minoan cult, further implanted by Minoan expansion throughout Mainland Greece. That this 'rhyton' type should have been taken from such a quarter is a striking proof of the intensive personal contact of the Minoans with Nilotic regions far above the Delta.

FIG. 130. RESTORED DRAWING OF STEATITE 'RHYTON' WITH MARINE SUBJECT. FROM ROOM OF THRONE, KNOSSOS.

Supplementary Note to § 41 on M. M. II painted sherds from Harageh (Fayûm), Egypt (see Fig. 119, p. 212).

a. Barbotine fragment of mature M. M. II *a* type, black glaze ground with red and white bands and white S-shaped scrolls connecting the knobs, as on a Knossian specimen of the same class (Ashm. Mus.). The inside shows a plain clay surface. The clay is of a pale brownish buff tone.

b. Part of rim and handle of a shallow bowl, showing white connected crescents horizontally arranged on dark brown lustrous ground. The crescents under rim show vertical red streaks. Inside is the same dark ground, with the point of a white petal. Brownish buff clay.

c 1 and 2. Perhaps part of a 'bridge spout'. Above, as seen in Fig. *c* 1, is a disk with two white concentric circles belonging to the class of imitative rivet heads (see vol. i, p. 192, Fig. 139, *c*, *d*. and p. 193 ; and Fig. 183, *b* 1, and p. 245), an indication that the prototype was of metal-work. Three surfaces of this enigmatic fragment are covered with lustrous black glaze on which are white streaks and white foliation with red stalk and dots. This latter much resembles the foliate band on the 'hole-mouthed' polychrome vessel illustrated for comparison with the Abydos vase, vol. i, p. 268, Fig. 199, *e*. Brownish buff clay.

d. (See, too, Fig. 120, *a*.) Impressed fragment, the surface originally covered with black lustrous glaze with white and red decoration. The stamped patterns (the surface of which is still partly covered with the black glaze) are closely related to one that appears on a polychrome bowl of fine egg-shell ware from Knossos (see above, Fig. 120, *b*). Dull brownish buff clay. Thin fabric, approaching egg-shell ware.

e. Small fragment showing white petals radiating from central disk on lustrous black ground. Compare the Phaestos jug and Kamares fragment, vol. i, p. 267, Fig. 198, A, B. Plain inside, with black patch. Thin ware as *d*. Dull brownish buff clay.

f 1 and 2. See Fig. 119. The perforated bulb is covered with vermilion red on the lustrous black ground with traces of a white ring round. On the upper surface are white bands overlaid with narrow bands of red on the same ground, and white disks round the stem or neck. Perhaps the lower part of a funnel, with strainer below and expanding rim above it to rest on mouth of a vessel to be filled. A M. M. II spout from Knossos, pierced as a strainer, may be compared with this. Ruddy brown clay.

g. Small fragment with lustrous glaze inside and out. Outside, in white on the dark lustrous ground, is part of a curved white pattern and of the 'tennis bat and ball' pattern characteristic of a Knossian class of mature M. M. II *a* polychrome ware. See Coloured Plate IX. Pale brownish buff clay. Fine texture as *d* and *e*.

(*h* is an unpublished sherd from Kahun, Ashm. Mus.)

Miss Winifred M. Crompton, of the Manchester Museum, has also kindly supplied me with coloured drawings of fragments of polychrome pottery from Harageh deposited there. Of these one seems to be a fragment belonging to the same vase as Fig. 119, *b*. Another presents what seems to be part of a palmette ornament, showing the ends of two acuminated leaves on a dark ground.

§ 42. The Harbour Town of Knossos: Minoan Shipping and Marine Goddess.

Harbour Town of Knossos, immediately East of Candia; Probable course of main road from Knossos to Port; Alternative line; Candia, military foundation; Minoan settlement West, by Platyperama mouth; Tylissos and Massif of Ida; Evidences of subsidence on Coast; Submerged quarries—method of splitting rock; Submerged column-bases and sacrificial Vat at Niru Khani; Earlier land line; Minoan relics from Harbour Town—rich tombs; Bronze figurine, unfinished; The 'Fitzwilliam' Statuette—a Mother Goddess; Lapidaries' Quarter—trial-piece of intaglio engraving; The 'Piraeus of Knossos'; Haven at river mouth; Ships on Minoan Seals; Early 'Fixed Rudders'; Fish ensign on Early Cycladic vessels—may mark Aegean element in Early Nilotic craft; Preference of early navigators for open sea; Single-masted sailing vessels on Early Minoan seals; Sailing ship on M. M. III intaglio with signs of sail decoration; Ships on L.M.II seal-impressions from Knossos; Transport of thoroughbred horses from Syrian side; Type of vessel on ring from Tiryns Treasure—the deck cabin; Ship on Proto-Geometric Vase from Messenian Pylos—recurrence of Fish ensign; Rudder on Knossian tablet with Linear Script B; Ship signs on Minoan Hieroglyphic tablets and tablets of Linear Class A; Goddess holding anchor; Marine aspect of Minoan Goddess; Advent of sacred barque on Mochlos Ring; Primitive raft of Isis Pelagia—her modern representative, Hagia Pelagia; her cult on site of Harbour Town at Knossos, at Mallia, and elsewhere; The Madonna as Lady of the Sea.

Site of Harbour Town of Knossos immediately E. of Candia.

It is clear that the main seaport of Knossos, which formed the Northern goal of the overland route across the Island, lay immediately East of the present town of Candia. This was the point of departure and arrival to and from the Cyclades and Mainland Greece, or still farther afield North or West. Following the coast in that direction from the West mole of the old harbour of Candia, Minoan remains, including sherds of all periods, rock-cut foundations, and traces of house walls abound superficially for the space of quite a mile, and Neolithic axes may also be picked up on the rocky surface of the headlands, pointing to very early habitation. The main centre of civic life seems to have lain on the easy slopes that rise from the left bank of the Kairatos river approaching its mouth, but plentiful traces of occupation extend to the headland looking down on the river-mouth to the right, which juts out beyond and shelters the offing on that side (see Sketch-Map).

Just East of the walls of Candia there stretches a small sandy flat

threaded by the trickle of another smaller stream and this on its inland course runs through a deep defile across which the road that led from the site of Knossos to Candia is carried by a medieval bridge the Bedevi Kamara, now supplemented by a modern one. Since, however, the ancient harbour town lay about the mouth of the river, East of the present town, there would have been no need to cross the cleft. We may assume, therefore, that the Minoan built way, of which the traces described above [1] almost coincide with the course of the existing high road, had here diverged from it and followed the right slope above the torrent-bed. (See Sketch-Map, Fig. 131, A.)

Probable course of main Minoan Highway to Port.

Near the little Church of Hagios Theodoros, it would in this case have approached the headland, called from its flat top Isopata (see Sketch-Map), marked by an important Late Minoan cemetery,[2] and the great built chamber known as the Royal Tomb.[3] This sepulchral group may indeed be thought to stand less in connexion with Knossos itself than with its harbour town which the hill-top overlooks, offering glimpses beyond on clear days of Melos and the volcanic cliffs of Santorin far across the Aegean waters. This connexion with the maritime outlet of Knossos is indeed particularly apposite if, as may be thought probable,[4] the 'Royal Tomb', itself the last resting place of earlier princes, with its mound and possibly a memorial stone above, was identified by later legend with the sepulchre of Idomeneus, who sailed forth from Crete with eighty ships—the largest contingent for the Trojan war.[5]

Past Isopata Bluff with 'Royal Tomb' and Cemetery.

From this point, too, an existing path leads along the hill-side in the direction of the site of Knossos, passing the Western border of the Zafer Papoura Cemetery,[6] which may approximately answer to the course taken by an alternative line of roadway leading from the Northern entrance of the Palace to the port. By the little Church of St. Theodore, mentioned above, immediately below Isopata and built largely of limestone blocks taken from the Royal Tomb, the two routes would converge and follow a common track to the harbour town.

Alternative and direct route to N. Entrance of Palace.

[1] See above, p. 153.

[2] A. E., *The Tomb of the Double Axes and Associated Group* (*Archaeologia*, vol. lxv; and Quaritch, 1914).

[3] A. E., *The Prehistoric Tombs of Knossos*, i and ii, p. 236 seqq.: *The Royal Tomb of Isopata* (*Archaeologia*, vol. lix; and Quaritch, 1906).

[4] See my remarks, *op. cit.*, pp. 170, 171. The tomb of Idomeneus, together with that of his half-brother Meriones the son of Molos, was pointed out near Knossos, with the inscription, according to Diodorus, v. 79. 4,

Κνωσίου Ἰδομενῆος ὅρα τάφον. Αὐτὰρ ἐγώ τοι
πλησίον ἵδρυμαι Μηριόνης ὁ Μόλου.

[5] *Il.*, ii. 651.

[6] *Prehistoric Tombs of Knossos*, i, p. 1 seqq. This cemetery clearly connects itself with Knossos itself, since it lies immediately outside its North-East quarter.

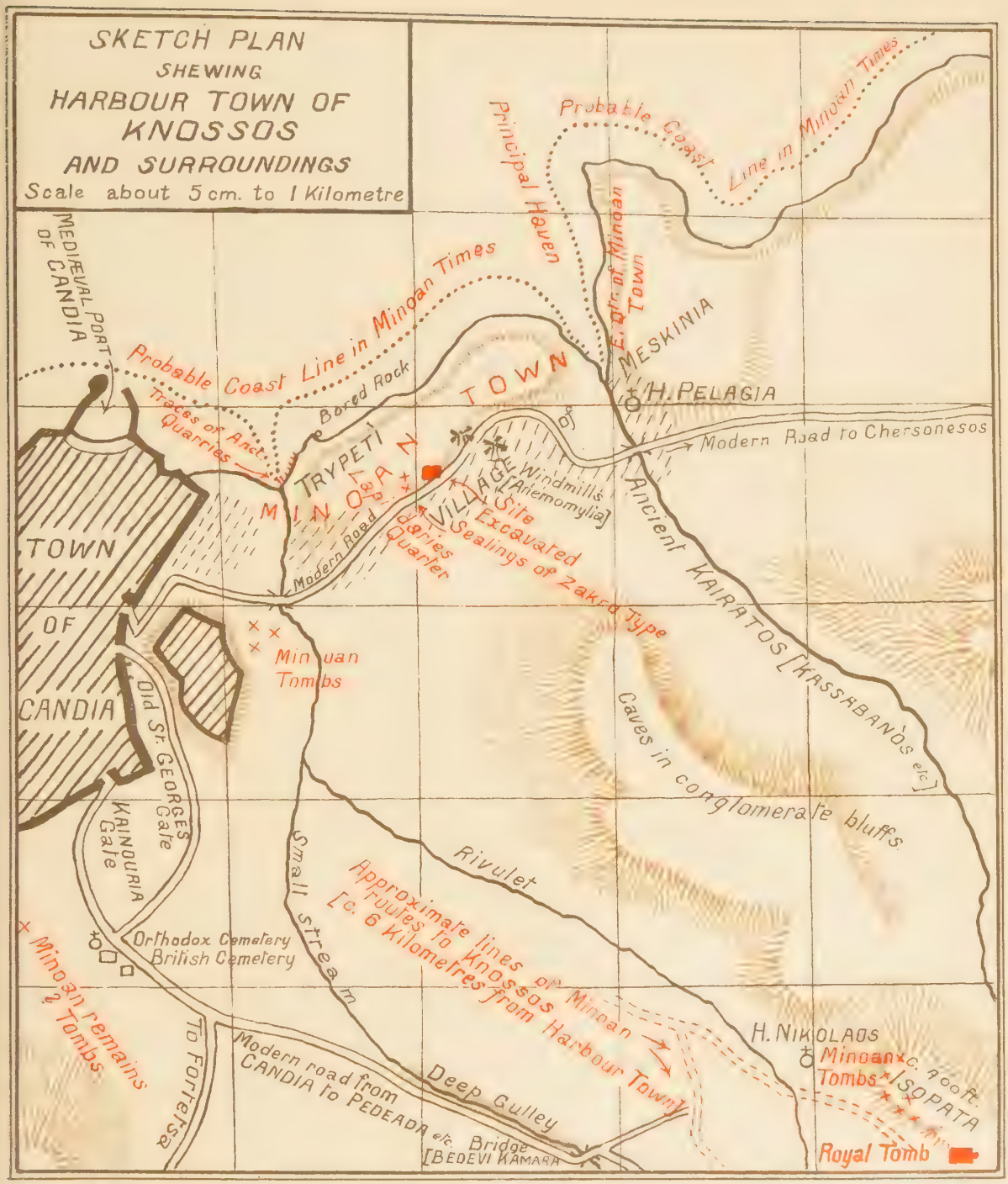

SKETCH PLAN
SHEWING
HARBOUR TOWN OF
KNOSSOS
AND SURROUNDINGS
Scale about 5 cm. to 1 Kilometre
Probable Coast Line in Minoan Times
Principal Haven
Probable Coast Line in Minoan Times
E. Qrs. of Minoan Town
MEDIÆVAL PORT OF CANDIA
Probable Coast Line in Minoan Times
Bored Rock
TOWN
MESKINIA
H. PELAGIA
Traces of Ant. Quarries
TRYPETI
MINOAN
Modern Road to Chersonesos
Ancient KAIRATOS [KASSABANOS etc.]
Windmills [Ariemomylia]
VILLA
Site Excavated
Sealings of Zakro Type
Modern Road
Quarries
Quarter
TOWN OF CANDIA
Minoan Tombs
Old St. GEORGES Gate
KAINOURIA Gate
Caves in conglomerate bluffs
Small stream
Rivulet
Approximate lines of Minoan roadways to Knossos
[c. 6 Kilometres from Harbour Town]
Orthodox Cemetery
British Cemetery
Minoan remains & Tombs
To Fortress
Modern road from CANDIA to PEDEADA etc.
Deep Gulley
Bridge [BEDEVI KAMARA]
H. NIKOLAOS
Minoan Tombs
c. 400 ft.
ISOPATA
Royal Tomb

FIG. 131 A.

There is no evidence that this Minoan maritime outlet extended over the area since occupied by the town of Candia. Candia itself was an artificial military creation of the Saracens, who shifted over their centre of power from Gortyna, where the Romans had fixed it, so that they might better oppose a bulwark against efforts from the Constantinople side. Their entrenchment, indeed, known as Khandax, gave the name of Candia, also applied to the whole Island. It was from this, too—mightily aggrandized and embattled by the Venetians to be for a while the bulwark of Christendom against the Turk—that it gained the local name, Megalokastron, 'the Great Camp', emphasizing its military character, which clung to it down to quite recent times. The shallow port—for all its 'galley houses'—was unapproachable in Northern gales, and the evidence of land subsidence given below [1] shows that in Minoan days it must have been a mere sandy cove, for the most part high and dry. The massive limestone blocks visible in the lower courses of the Western mole do not seem to be of Minoan work.

Candia, a Later Military Foundation.

About a mile West of the Canea gate of Candia, however, there are traces of a considerable Minoan settlement scattered along the bluff that overlooks on that side the mouth of the Platyperama stream,[2] the upper waters of which have been mentioned in connexion with the transit route across the centre of the Island. That this ancient haven must have offered an alternative outlet to Knossos is clear from the fact that owing to the conformation of the country the one practicable route linking the Minoan capital with Western Crete would have passed immediately above it. Connected, moreover, probably, with a cross line of communication, are some remains dating from the close of M. M. III [3] that have come to light a little South of the extreme angle of the Candia enceinte on that side.

Minoan settlements W. of Candia.

The sandy flat that stretches beyond the Platyperama mouth is traversed successively by two streams, the Xeropotamos, along the upper course of which the modern road to the Mesarà Plain runs, and the Gazanòs, by the mouth of which a low mound is visible marking what may have been the central point of another Minoan maritime station. Remains of *pithoi* abound, belonging to the close of the Middle and the beginning of the Late Minoan Age. Some of these contained skeletons, and a good painted example of such from this site, of M. M. III date, found by Dr. Hatzidakis has been illustrated above.[4] It is highly probable that

[1] See below, p. 232 seqq.

[2] Locally known here as the Geophyros.

[3] Amongst these was part of a limestone 'rhyton' of the pear-shaped type with separate mouthpiece and a prominent ring round the collar.

[4] *P. of M.*, i, pp. 584, 585 and Fig. 428. Cf. Ἀρχ. Δελτίον, 1918, pp. 60, 61 and Pl. VI.

this settlement represented the harbour town of Tylissos, where a group of noble Minoan mansions was also excavated by him.

Minoan route via Tylissos to W. of Ida.

A further discovery here made is specially significant. Close beside the existing track that runs West across this sandy stretch of the littoral, a native cultivator who had occasion to dig a pit struck, at a depth of about two metres, a line of pavement belonging to an ancient roadway, running parallel to the modern, which may well go back to Minoan times.[1] The position of the coast road that linked these Minoan river-mouth ports is itself narrowly circumscribed, since the sole practicable line of communication with the Rethymnos district and the Western region of the Island runs through the pass—1,800 feet at its highest point—that opens, immediately beyond, between the acropolis height of Tylissos and the Southern steeps of Mount Strongylos, the Cretan Stromboli. Southward of this, indeed, the transit route West is effectually barred by the foot-hills of Mount Ida, stepping up to loftier elevations.

The Ida Massif.

The central mass of the Cretan dorsal range—which imposes a certain divorce between the middle of the Island and its Western regions—can nowhere be better realized than from the North-Western bastions of the Venetian sea-wall of Candia. The view, indeed, from this point as seen across the bay, with its varied mountain profiles clear against the evening sky, can hardly be rivalled by Naples or Taormina. From Cape Achineos on the North and the cone of the Cretan Stromboli the eye follows inland the nearer ridge of the upland plain of Nida, with the snowy peak of Ida rising beyond to a height of 8,050 feet, the Southern steeps of which allow no more passage room towards the sea on that side than is to be found to the North.

Of primary importance in considering the ancient haven of Knossos which lay, as we have seen, immediately East of the walls of Candia are the evidences of subsidence, which extend all along the Northern Coast of Central Crete in a parallel degree with that already noted at Matala in its Southernmost region.[2]

Partly submerged quarries at Port of Knossos.

About five hundred yards West of the old harbour of Candia where the rugged steep of Trypetì reaches the sea, some flat rocks showed, so far as the wash of the waves permitted, grooves about six inches wide dividing the limestone face into regular lines of square blocks, while in other places there were

[1] In the absence of exact details and a stratified section the possibility of its having been of Roman work must be admitted. But the remains at least show that for a long period of years the coast road has practically followed the same line.

[2] See above, p. 87.

traces of round borings, the full explanation of which was given by similar phenomena on a larger scale observed by me on the rocky sea-margin of the little port of Hagio Pnevma, about two miles West of the Minoan town of Mallia (Fig. 131, B). The borings there were about six inches deep and six to nine inches in width, and in some cases retained part of the central core

FIG. 131, B. BORINGS FOR QUARRYING ROCK ON SHORE, H. PNEVMA, NEAR MALLIA.

left by the large drill with which they had been worked out. They were arranged in regular rows—one sometimes intersecting another—and the native Cretans were well aware of the function that they had performed in the art of primitive quarrying. Into these would have been inserted the ends of wooden poles the expansion of which, due to saturation, broke the rock, the size of the blocks being further regulated by the same grooving process noted at Knossos. In the Minoan haven of Niru Khani which lies between Mallia and that of Knossos, similar borings are to be seen where the rocky surface of the ground juts out at its Eastern extremity, while by its sickle-shaped Western projection square-cut areas of the old quarries are visible, the floors of which are some two metres, beneath the sea. Just where this arm of the old

Method of splitting rock.

Submerged quarries, column-bases, and sacrificial vat.

haven juts out, moreover, at Niru Khani, there are visible two submerged Minoan column-bases and part of the lower courses of the walls connected with them, while near by, also washed over by the sea, lies a typical stone vat such as are often found at the base of piers in Minoan pillar crypts, where they served as recipients for the blood of sacrifice. At the intermediate harbour of Chersonesos I noticed the lower part of what apparently were Roman walls beneath the sea-level, while near Mallia again Late Minoan tombs exist on the immediate sea margin.

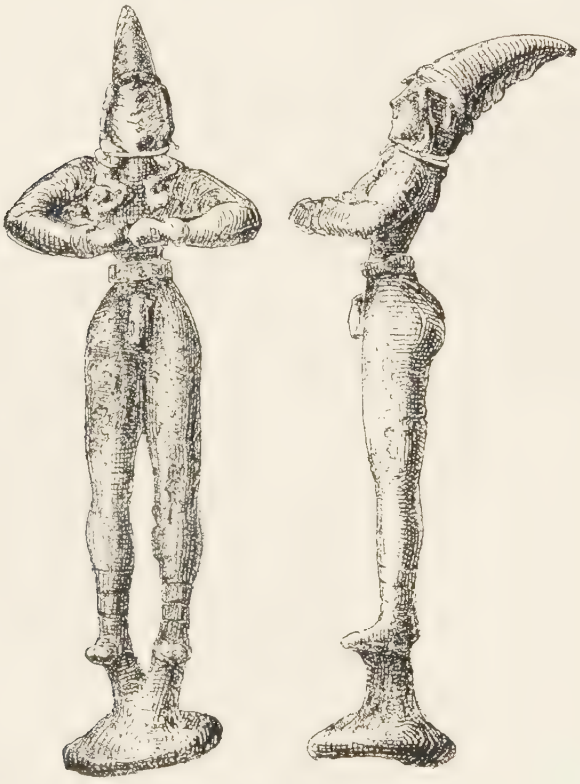


FIG. 132. BRONZE FIGURINE (UNFINISHED), HARBOUR TOWN, KNOSSOS.

It is clear that, however near the sea it may have been thought convenient to work quarries, neither these nor tombs nor houses could have been placed within actual reach of the waves. This evidence which, as will be seen, is intermittently forthcoming here over about twenty miles of the coast, is of a complex kind but it points to a subsidence of at least four or five metres since Minoan times.

It will be seen from the Sketch-Map that if the present twelve-foot line[1] of sea-depth is taken as a guide, the old land surface included practically the whole of the existing harbour of Candia, the sands of which, indeed, may have been useful for the drawing up of small craft. The front of the Minoan town, moreover, would have extended seawards for a mean distance of about two hundred yards,[2] thus allowing for a considerably more capacious river mouth.

Earlier land line.

Increased facilities for the mooring or beaching of vessels may also have been gained for the smaller stream to the West, which certainly passed through a flourishing quarter of the town. Near its course, in fact, a little

[1] The soundings on which this calculation is based are taken from the British Admiralty Chart.

[2] The soundings do not seem really to admit of the suggestion (vol. i, p. 298) of a Minoan breakwater, forming a continuation of the Northern mole of the present harbour.

above the point where it is traversed by the modern road, the sinking of two wells brought out at a depth of about five metres, in the one case remains of silver vessels and pottery belonging to the beginning of the Late Minoan Age, in the other what must evidently be regarded as the typical contents of a rich L. M. II tomb.[1] We may infer from this and further evidence of tombs that there was hereabouts a Minoan cemetery at that date.

Rich L. M. Tomb by Harbour Town, Knossos.

On the South-West flank of the hill that rises here immediately above the right bank of this little stream, in an irregular rock vault, was found the bronze figurine, Fig. 132,[2] seemingly of the votive class. It represents a youth in a belt and somewhat scanty loin-clothing with a flap behind, wearing a curious peaked cap and with tresses falling in curls over his shoulders as far as the nipples and in fuller volume behind his neck. Both arms are bent in front of him in a usual ceremonial attitude, and his feet, which are connected with a circular stand, are wound round with Minoan *puttees*. He wears bracelets on his wrists and he has a gold wire doubly twisted round his neck, which confines his falling locks. From the fineness of the work this figurine must be referred to the best epoch of the Minoan bronze-workers' art—the transitional age, namely, that links the last Middle Minoan Period with the first Late Minoan. It may well be contemporary with a typical clay *oenochoê* presenting a raised collar of the M. M. III *b* class found in a crevice somewhat lower down the slope.

Bronze figurine in unfinished state.

The ceremonial attitude of the arms as well as the peaked, tiara-like head-piece suggest the possibility that we have here before us the Boy-God of whom an exquisite figurine in ivory will find illustration in Vol. iii of this work. In that case, apparently, he is in the act of saluting his divine Mother.

The Minoan Boy-God.

It is of special interest to note that this finely moulded figure had never received the finishing touch from its maker. Little lumps of metal, notably between the bend of his left arm, which could easily have been removed, are still adhering. This incomplete condition may fairly be taken as evidence that the figurine was of local fabric, a conclusion which squares with a series of indications supplied by another artistic craft. Repeated discoveries have in fact occurred on this site, not only of whole or parts of stone vases of native and imported materials, but of unfinished specimens and waste products due to untimely fracture.

Proofs of lapidary's industry on site.

If local report may be trusted, the admirably wrought statuette of the Minoan Goddess in mottled stone now in the Fitzwilliam Museum[3] was also

[1] Now in the Candia Museum.

[2] See Hatzidakis, Ἀρχ. Δελτ., ii, p. 160, Fig. 3.

[3] This has now been finely published by Mr. Alan Wace (*A Cretan Statuette in the Fitzwilliam Museum*). My Fig. 133 is taken from a photograph of the statuette in its original condition.

a *b* *c*

FIG. 133. UPPER HALF (*a*, *b*) OF STONE STATUETTE OF MOTHER GODDESS FROM HARBOUR TOWN OF KNOSSOS ($\frac{1}{1}$); *c*, SIDE VIEW OF ENTIRE FIGURE

found within the area of the Harbour Town of Knossos. It represents the only example of an entire Minoan figure carved in stone, and at the same time shows the most perfect modelling of the human face. In other ways, it is of great value as a supplement to the faïence figures of the Snake Goddess and her 'votaries' given in the preceding volume. In this case the artist has concentrated himself on the maternal aspects of the divinity and has

a *b*

Fig. 134. Steatite Object, probably for Trial Designs of Some Engraver; from Harbour Town, Knossos.

omitted the snakes that symbolize her Underworld dominion. Otherwise the tiara and dress are practically the same, including the sleeved jacket and bodice,[1] and the parallel with the faïence 'votary' or double extends even to the pattern of the apron and of the flounced skirt.[2] We have here a contemporary work standing in the closest relation to the products of the Palace faïence factory of the mature M. M. III epoch.

Unfinished Stone Vases and Wasters.

The evidences of a Lapidaries' Quarter were specially abundant on the Eastern slopes of Trypetì and near the spot called Anemomylia from two

[1] Mr. Wace (*op. cit.*, p. 2) notes the stays or 'bones' and ingeniously suggests that the knob belongs to a curved pin. The attachment of the upper part of the body to the lower by means of a tenon or socket already finds parallels among the figurines of Petsofà (M. M. I *a*).

[2] *P. of M.*, i, p. 502, 503, Figs. 360, 361.

windmills, near which lay the important house remains described below. Among specimens observed by me were limestone lamps, one with a fine foliate border, such as is seen on contemporary bronzes, a part of a vase of Spartan basalt (*lapis Lacedaemonius*), of which considerable stores were found in the Late Minoan Palace, and an unfinished 'rhyton' in grey limestone.

Lapidary's trial-piece.

A further light on the artistic industry of the harbour town is thrown by a steatite object presenting incised circles with animal figures carved in relief (Fig. 134).[1] It seems probable that we have here the trial designs of an engraver of seal-stones, which may also have served as models for an apprentice. An alternative view would be that the recessed reliefs are intended for actual moulds or for repoussé disks. In any case, we have here a relief derived from the workshop of some local craftsman. The harbour town of Knossos reveals itself indeed as a flourishing manufacturing, industrial, and artistic centre as well as a port, and must have stood to the inland City in much the same relation as the Piraeus stands to modern Athens.

The Piraeus of Knossos.

Minoan Remains on Hill of Trypetì.

Many remains of the ancient settlement lie on and about the rocky hill of Trypetì, so called from a sea-worn arch on the cliff face of the headland, Minoan pottery being specially abundant on the flat area, of many acres' extent, that forms its summit. This is of all periods, but L. M. I *a* sherds may be said to predominate. Besides rock-cut foundations, some of which may be very early, we were able to explore part of the chamber of a house containing M. M. II sherds. On the slope to the East are remains of more important houses, perhaps as being nearer the haven at the river-mouth. Beyond the stream the traces of Minoan habitation extend over the hill above the little Church of Hagia Pelagia. On the promontory beyond, Minoan sherds, mostly M. M. III and Late Minoan, are still fairly abundant, including numerous fragments of large jars. But the general impression left by exploration on that side was that the inhabitants were of a poorer class.

Haven at River-Mouth; Defective Shelter without.

As a whole, in spite of the smaller as well as the larger river-mouth and the greater expanse of sands for drawing up vessels that seems to have existed when the whole land front was at a lower level, the natural conveniences of the place as a seaport were not such as would have led us to expect such a flourishing community. The protection afforded by the headland to the East was not itself of great value, since the wind in this part of Crete blows rarely from that quarter. On the other hand, the Western horn of the bay gave but little shelter against the prevailing North-West gales.

Island of Dia.

There stretches indeed along the horizon to the North the island of Dia,

[1] From a cast supplied me by Mr. Seager, who obtained it here in 'the Lapidaries' Quarter'.

shaped like some great saurian, with trailing tail and a monster's head protruding from its angular shoulders, as if in eternal pursuit of the rocky islet of Paximadi that rises like a swimming tortoise beyond. But the six miles'

Fig. 135. View of Dia and Islet of Paximadi from Candia. By Theodore Fyfe.

interval that separates its nearest point from the shore is too great to allow much protection on that side. Unquestionably, however, as already pointed out,[1] this desolate island—the legendary stranding place of Ariadne—has in all ages performed a very real function as a place of refuge for shipping against the Northern blasts. In its two principal coves there are some slight traces of Minoan habitation,[2] though to-day its rocky heights and rock-strewn glens can only give sustenance to rabbits and a few stray goats.

The peak of Juktas, rising immediately behind the site of Knossos, certainly affords a most conspicuous goal for mariners, marking from far out to sea the point where the little river debouches into its sandy cove.

a *b*

Fig. 136. Sailing Vessels on Seal-stones of the Close of the Early Minoan Age.

Of the ships themselves, either drawn up along the river-mouth or anchored in the roads, we obtain summary glimpses on Minoan seals and on clay documents both of the hieroglyphic series and of the earlier and later class with the advanced linear signs. Specimens have been already given taken

Ships on Minoan Seals.

[1] *P. of M.*, i, pp. 298, 299.

[2] See *loc. cit.*, p. 298.

from hieroglyphic seals and tablets of Classes A and B,[1] together with a good example belonging to the end of E. M. III or the beginning of M. M. I on a three-sided steatite seal from Platanos, here repeated, Fig. 136, *a*.[2] With the latter is placed an enlargement of another ship on a three-sided steatite bead-seal of contemporary fabric found in the Knossos district (Fig. 136, *b*).[3]

Palaikastro Model.

A feature in several of these representations, notably the last two, is the projection visible at the stern of the vessel. This is in fact a very ancient inheritance of Cretan shipping, as is clearly shown by the clay model of a vessel found at Palaikastro (Fig. 137), in an E. M. I–II ossuary.[4] It there appears as a tail-like appendage and served, in truth, as a kind of 'fixed rudder' in which, as well as the high prow, we may recognize a constructive device due to the necessity of navigating the open sea.

Fig. 137. Clay Model of Vessel, E. M. I–E. M. II, Palaikastro.

Early 'Fixed Rudders'.

This 'fixed rudder', indeed, has a great comparative interest in relation to the history of early navigation, since analogies to it occur among primitive peoples in remote and very diverse quarters of the globe. It is seen at Madras, for instance, as an integral part of the log-rafts or Catamarans, used for communication between the shore and vessels out at sea, the prow of these, too, being slightly raised as a protection against the surf. Dug-outs equipped for sailing in the South Pacific and elsewhere show a similar projection behind, forming an integral part of the hull. In the case of the log-rafts this rudder-like effect is simply produced by making the central of the three logs of which its platform is composed slightly longer than its fellows, so that it juts out behind. The purchase thus gained against the water, to a certain extent, stood primitive vessels of these classes in place of a keel and made them more dirigible.

'Fixed Rudder' on Primitive Vessels. Catamarans of Madras.

Both in the 'fixed rudder' and the high prow the clay boat has a special importance as presenting the earliest example of a form of construction which reappears on a whole series of rowing galleys—in one case

Fish Ensign on Early Cycladic Craft.

[1] *P. of M.*, p. 283, Fig. 215, d. A few more specimens are supplied by the clay tablets of Mallia to be described by Monsieur F. Chapouthier.

[2] *P. of M.*, p. 118, Fig. 87, 7. Cf. Xanthudides, *Vaulted Tombs of Mesarà* (transl. Droop), Pl. XIV, no. 1079.

[3] For impressions of this see *P. of M.*, i, p. 120, Fig. 89, *a*, *b*, *c*.

[4] R. C. Bosanquet and R. M. Dawkins, *The Unpublished Objects from the Palaikastro Excavations*, Part I (1923), p. 7, Fig. 4 (Suppl. Paper of the British School at Athens).

with twenty-eight oars on each side—seen incised on Cycladic pottery contemporary with the latter part of the Early Minoan Age, Fig. 138.[1] These

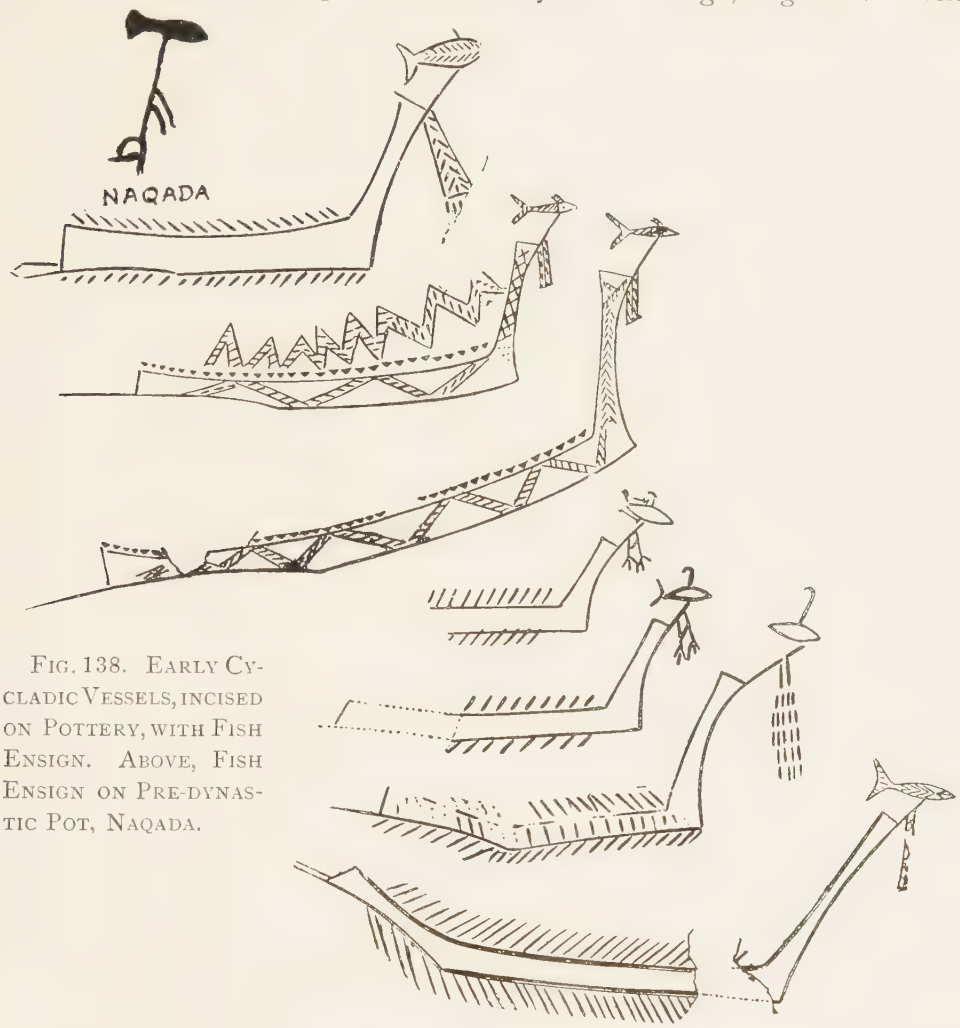


FIG. 138. EARLY CYCLADIC VESSELS, INCISED ON POTTERY, WITH FISH ENSIGN. ABOVE, FISH ENSIGN ON PRE-DYNASTIC POT, NAQADA.

[1] Tsountas, Ἀρχ. Ἐφ., 1899, p. 90, Fig. 22 (Siphnos). These engravings must be referred, for the most part at least, to 'Early Cycladic III'. Prof. August Koster, *Das antike Seewesen*, p. 59 seqq.—misled apparently by the equipment of Greek Geometrical and later vessels with a sharp beak in front—regards what has here been called a 'fixed rudder' as a 'spur' on the prow. Unquestionably there exists a class of primitive craft with a projection in front, as, for instance, the canoes of the Baganda on Lake Victoria Nyanza. But the relative heightening of the prow as compared with the stern is an usual characteristic of primitive sea-going vessels. In the case of the Minoan vessels the prow, marked by a double barb or a kind of open beak, is generally higher than the stern (cf. Fig. 140). Moreover, the tradition of the fish ensign preserved to the latest Minoan or Mycenaean times in the example given below in Fig. 143 strongly confirms the view that it was placed at

May mark Aegean element in Early Nilotic Vessels.

Cycladic designs are of great interest from the fact that, as already noted in an earlier Section of this volume dealing with the pre-dynastic Egyptian culture, the fish ensigns that they bear, with a double streamer floating from the pole, correspond in these characteristic features with a type of ensign that occurs on a well-known class of Nile craft of late Prehistoric date.[1] These ensigns, which form a small series of not more than a dozen varieties, in several cases answer to early Nome signs of the Delta.[2] These Nilotic vessels were provided with numerous oars, but they do not, like the Aegean sea-going craft, show the tail-like rudder behind.

Preference of Early Navigators for open sea.

It looks as if the 'fish' ensign may have marked the Northern galleys that in the *Meltem* season were already making their way to the mouths of the Nile from Crete and the Aegean at the opening of the Early Minoan Age. It is, as already observed, a great mistake to suppose that primitive navigators shrank from the open sea. What they rather feared were iron-bound headlands and stretches of surf-beaten coast. That the use of the sail was probably as early known to the islanders as to those who dwelt by the Nile or the Euphrates, and had already supplanted oars for long voyages, may be gathered from the frequency of single-masted ships on Cretan seal-stones of the pictographic class. There seem, indeed, to be good grounds for believing that it was from the Aegean side and neither from Egypt nor the Syrian coast that fully equipped sailing vessels first traversed the open Mediterranean. The Minoan mariners might with greater right have put forth the claim, later advanced on behalf of the Greeks of Aegina :[3]

Single-masted sailing vessels on Early Minoan Seals.

Οἱ δ' ἦτοι πρῶτοι ζεῦξαν νέας ἀμφιελίσσας
πρῶτοι δ' ἱστία θέντο, νεὼς πτερὰ ποντοπόροιο.

The tradition of the spur or 'fixed rudder' is still seen on some three-sided seal-stones of the more advanced pictographic class, illustrated above (vol. i, p. 283, Fig. 215, d), belonging to the close of E.M. III or the beginning of the Middle Minoan Age. On the lentoid of black steatite (Fig. 139), which, though early of its class, is best referred to the close of M.M. II, this feature has disappeared, and we see in place of it the two steering oars clearly marked.

the prow. In the case referred to where there is an incipient spur in front,—the precursor of the Geometrical series,—the stern is indicated by a steering oar.

[1] See above, p. 26, and my Huxley Lecture (*R. Anthr. Inst. Journ.*, 1925), pp. 7, 8. The position of the ensign on these Nilotic vessels is in front of the first of the two cabins seen amidships.

[2] Professor P. E. Newberry, *The Petty Kingdom of the Harpoon and Egypt's Earliest Mediterranean Port* (*Liv. Anns.*, vol. i, p. 18), who has also pointed out that some of the 'decorated' pre-dynastic pots on which vessels with these ensigns occur show them grouped in a geographical connexion preserved by the position of the Delta Nomes in historic times.

[3] Hesiod, *Catal.*, Fragm. 96.

Unfortunately no detailed representations of vessels of the great Age of Minoan Civilization have as yet come to light in painting or relief such as are supplied by Egyptian monuments, and we still have to content ourselves with the epitomized designs of seals and seal-impressions. The most picturesque glimpse preserved to us is that of a ship under full sail, bellying in the breeze, on a 'flat cylinder' from the Knossos district, apparently of M. M. III date (Fig. 140).[1] Reference has been already made to this[2] on account of the pattern engraved on the sail which suggests painted or

Sailing Ship on M. M. III Intaglio.

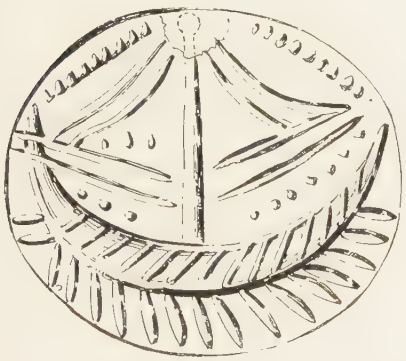


Fig. 139. Black Steatite Lentoid; Central Crete.

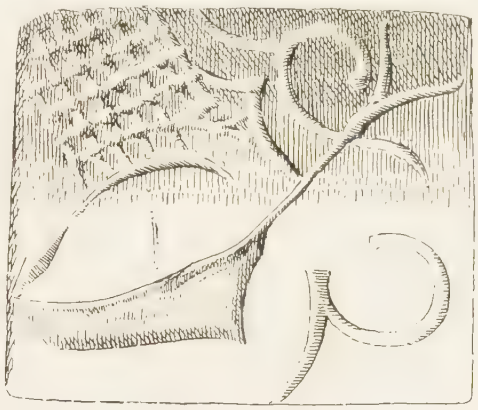


Fig. 140. Ship under Full Sail on 'Flattened Cylinder' found near Knossos (M. M. III).

embroidered decoration of the spiraliform class, such as is sometimes seen on sails of Egyptian vessels. The ship has a long forked projection at its prow, and fantastic scrolls, symbolical, perhaps, of waves, appear in the field.

Of distinctly later date are the two seal-impressions from Knossos, sketchily completed omitting any indication of the steering oars in Fig. 141 *a*, *b*. Both show the central mast, though the rigging varies. In *b*, which seems to be purely a sailing vessel, we see a yard with the sail furled, and below this a structure in which we must recognize a deck cabin. This construction reappears in *a*, which is distinguished from the other design by the delineation of rowers, who seem to be beneath the awning, and of oars, of which there were apparently eight on each side.

Sailing ships on L. M. II Seal-impressions, Knossos.

The most remarkable feature in this representation, which occurred on a seal-impression from the Little Palace at Knossos, is the noble figure of

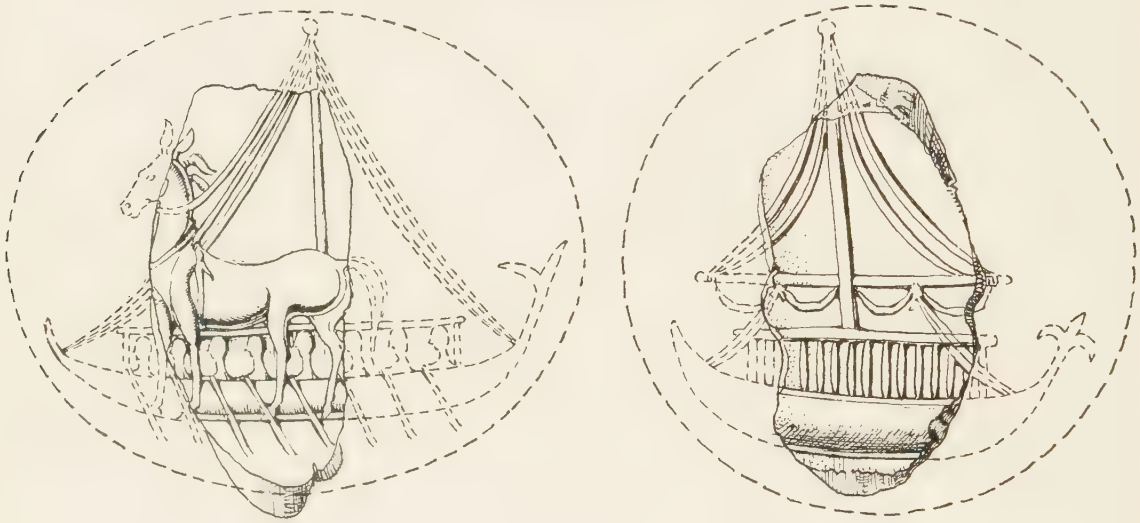
Transport of thoroughbred Horses.

[1] The material seems to be a kind of haematite. Unfortunately the surface is a good deal worn so that, for instance, hardly any trace of the mast is preserved.

[2] P. 206 above.

From Syrian side.

a horse—a true thoroughbred—superposed on the intaglio of the vessel.[1] If, as seems to be a fair inference, we may regard this as indicating the character of the cargo, we may here trace a reference to the maritime agency by which thoroughbred chariot-horses were brought to the Island. An upper term for the date of the seal-impression itself is supplied by the peculiar tufted dressing of the horse's mane, since this corresponds with the coming in of a later fashion in the chariot itself, which has a curved posterior



a *b*

Fig. 141. Clay Sealings showing Sailing Vessels, from Knossos; *a*, with Figure of Horse superposed.

section added to it. This fashion, as I have shown elsewhere, comes in, both in Crete and in the Mycenaean regions of Mainland Greece, about 1450 B. C. At Knossos it marks the last Palace Period (L. M. II) and the 'Chariot Tablets' with the Linear Class B consistently reproduce both this dual construction of the car and the tasselling of the horses' manes. But it can be shown that this tufted arrangement of the manes was itself taken over from Oriental models, and we may further conclude that the vessels used for the transport of horses, the heads of which were thus bedecked, plied with Syrian ports.

A confirmation of the view that this design may refer to such importation is given by the associations of the seal-impression, Fig. 141, *b*, in a contemporary style, which occurred in a large deposit of tablets of the Linear Class B, found on the West border of the Northern Entrance Passage of the

[1] See A. E., *Knossos*, *Report*, 1905, pp. 12–14 and Fig. 7 (here re-drawn).

Great Palace. The deposit, belonging to the Second Late Minoan Period, contained numerous inscriptions relating to chariots and their parts such as are associated with horses' heads showing the same tufted manes as that of the horse in Fig. 141, *a*. This seal-impression is clearly dated to the last half of the fifteenth century B. C.

Type of Ship on Ring from Tiryns Treasure

Mycenaean Greece supplies two later delineations of vessels which carry still farther the story of Minoan naval construction. Among the early elements of the Tiryns Treasure, of a date contemporary with the earlier

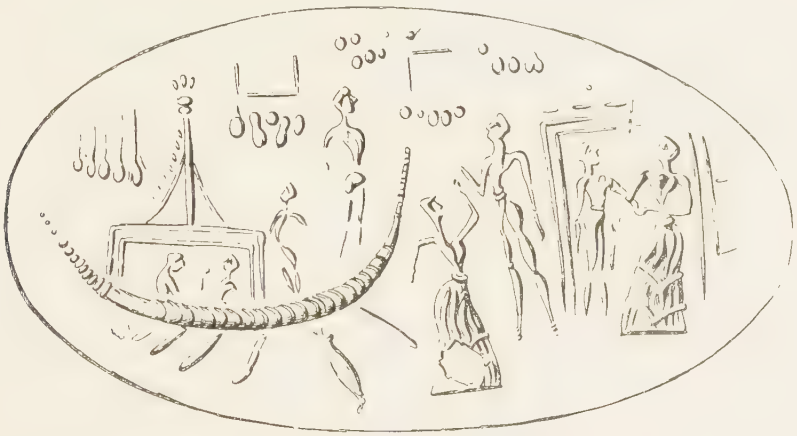


FIG. 142. SCENE OF DEPARTURE ON A SAILING VESSEL.
GOLD SIGNET-RING, TIRYNS TREASURE. ($\frac{3}{1}$)

phase of L. M. III,[1] besides the great gold ring with the Seated Goddess and ministering Genii described below, was a smaller ring of the same material presenting an animated subject, the principal elements of which are clear, though the worn state of the surface prevents us from recognizing some of the details. Fig. 142 [2] will give a sufficient idea of this composition which in its dramatic movement may compare with episodes on the Thisbê intaglios that have supplied Minoan versions of the story of Oedipus and the Sphinx and of the vengeance of Orestes.[3] In some ways they present even a nearer parallel with the scenes on the 'Ring of Nestor'. The ship seen on the left shows a cabin placed somewhat behind its centre, with a mast rising above it and rigging attached. The rowers, of which there seem from the number of the oars to have been four, are not given, but within the cabin

with Goddess on bark.

Deck Cabin.

[1] For this deposit (which also contained Geometrical elements), see Alex. Philadelpheus, Ἀρχ. Δελτ., 1916, Παράρτημα, p. 13 seqq., and cf. G. Karo, *Arch. Anz.*, 1916, p. 143 seqq.

[2] Specially drawn for me from a cast, with the aid of the original in the Museum, by Monsieur Gilliéron, fils: enlarged three times.

[3] See A. E., *Ring of Nestor, &c.* (Macmillans), p. 27 seqq.

are seen two seated persons facing one another, one of whom appears to be a woman. From the position of the steering oar the vessel seems to have its stern towards the shore, and on it stands a male figure looking towards two couples, of either sex, beyond. The two, who stand within the door of a building, seem to be embracing each other; the female personage to the left salutes them, as if in the act of saying farewell, but the interpretation of the subject is still to seek. In view of the successive episodes woven together on the 'Ring of Nestor' the possibility, however, cannot be ignored that we have here to do with separate scenes of leave-taking and actual departure. A certain analogy is presented—though in

FIG. 143. SAILING VESSEL WITH RUDDER AND FISH ENSIGN; FROM FRAGMENT OF PYXIS OF PROTO-GEOMETRIC STYLE.

that case relating to arrival—by the fine ivory relief from Sparta where the commander is seen stepping off the stern of a warship to greet his spouse who stands waiting for him on the shore.[1]

Ship on Proto-geometric Vase from Messenian Pylos.

To the Tiryns specimen, which may be probably referred to the second half of the fourteenth century before our era, must be added a relic of the transitional Age that has some title to be called Achaean. It is the Age when wholly new elements were being introduced West of the Aegean, representing part of the process by which the Southern Mainland on that side eventually became Greek. The restored fragment of a pyxis (Fig. 143) from one of the later burials of the *tholos* tomb at the Messenian Pylos[2] was associated with other pottery, which, though in many respects preserving Mycenaean forms and traditions, bears witness to the coming in of extraneous orna-

[1] R. M. Dawkins, *B. S. A.*, xiii (1906–7), p. 100 seqq. and Pl. IV (reproduced on p. 252 at the end of this Section). It is there described as a scene of departure, but the yard seems to be hauled up, and the captain is clearly stepping off. Koster (*op. cit.*, pp. 88–90) rightly sees in it a scene of arrival.

[2] K. Kuruniotis, Ἀρχ. Ἐφ., 1914, p. 109, Fig. 15. Cf. A. Koster, *Das antike Seewesen*, pp. 64–6 and Fig. 18. Koster aptly remarks (p. 66) that the presence of this pointed ram in front of the early Greek vessels made it necessary to bring the vessel to land stern forward. This was the Homeric practice.

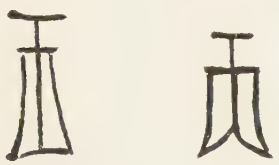
mental elements. The ship here, which it may be assumed had a broad square-cut sail, anticipates certain pure Geometrical forms in showing an awning running its whole length and in being equipped with a distinct spur or 'rostrum' in front. It is fitted with a true rudder in place of the earlier steering oars, a stage in naval development which seems to have been already reached in Late Minoan times. But in some ways its most interesting feature is the reappearance at the prow of the fish ensign of old Aegean tradition.

Survival of Fish Ensign.

The equipment of this vessel anticipates later usage in the appearance, in place of the earlier steering paddles, of what seems to be a true rudder, fitted with a tiller. That this development had taken place before the close of the Palace Period at Knossos is made probable by a sign contained in a group, perhaps representing a male personal name, on a tablet of the Linear Class B (Fig. 144, *a*).[1] Another linear character that may be regarded as a variant of this (Fig. 144, *b*) is seen in the inscription on the fragment of a painted sherd found in the Domestic Quarter at Knossos and belonging to the earlier part of the period of Reoccupation (L. M. III *a*).[2] From its style, the vase to which it had belonged was probably of Mainland importation. Both varieties, in fact, bear a distinct resemblance to certain types of rudder (πηδάλιον) which were still in use in Classical Greece. A comparison of the Egyptian steering paddle with central stem shows that this type is simply a development from an oar with the addition of the bar or tiller (οἴαξ).

True Rudder.

Appearance of Rudder on Knossian Tablet of advanced Linear Script and on Mycenaean Sherd.



a *b*

Fig. 144. Rudder Signs; *a*, on Knossian Tablet of Linear Class B; *b*, on Imported Myc. III *b* Sherd.

In the Cretan script of the Hieroglyphic class the whole vessel was figured,[3] as it had been in the earlier Pictographic class of Cretan seal-stones.[4] It is of interest to note that on one clay impression, on a seal of the 'signet' type, from the 'Hieroglyphic Deposit' at Knossos the ship sign is grouped with the olive spray,[5] a hint of the export of oil from the Island. In the case of a large four-sided seal on the other hand[6] the ship is associated with five tree-signs, one before and four succeeding it, a cumulative grouping that suggests a forest. The trees in this case have nothing in

Ship Signs on Minoan Hieroglyphic Tablets.

[1] No. 49 in my list. The group in which this sign occurs is .

[2] See *Knossos*, *Report*, 1902, pp. 66, 67, and Fig. 33. Dr. Mackenzie regards the fragment as belonging to the latter part of the first phase of the Third Mycenaean Period (Myc. III *a*).

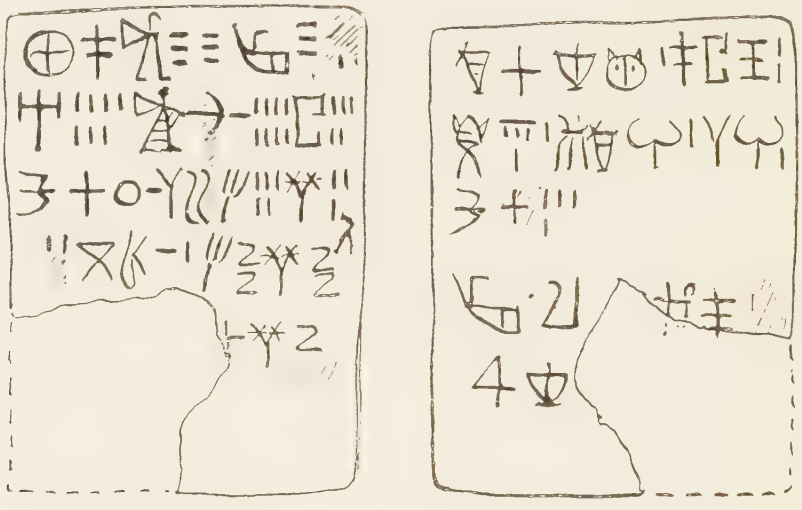
[3] A. E., *Scripta Minoa*, i, p. 203, no. 57.

[4] See, for instance, *op. cit.*, Pl. I, P. 4 *a*.

[5] *Op. cit.*, p. 63 *a*.

[6] *Op. cit.*, Pl. II, p. 26 *a*.

common with the olive, and the simple spikes that stand for branches may be taken to show that we have to deal with some kind of fir. We have here, in fact, a very probable reference to the export of timber derived from the old cypress woods of the island that provided the huge Palace beams.[1]



a *b*

FIG. 145. TABLET OF LINEAR CLASS A, FROM HAGIA TRIADA, SHOWING 'SHIP' SIGNS AND WINGED FEMALE PERSONAGE APPARENTLY HOLDING AN ANCHOR.

It is possible that 'cedar' wood reached Egypt from Crete as well as from the Syrian ports.

Forepart only on advanced Linear Class A and B.

In both classes of the advanced linear script the forepart only of a ship appears among the characters. It is possible that in cases where it is grouped with other signs, it may have formed part of a personal name like the Greek *ναῦς*. Where, however, it appears alone, as on both sides of a tablet of Class A from Hagia Triada, Fig. 145, *a*, *b*,[2] it has clearly an ideographic value. Here on face *a* it is followed by numerals meaning 30.

Ship Sign on Linear Documents.

This tablet is noteworthy from the appearance of the two mysterious signs already mentioned in connexion with the ink-written cup from Knossos,[3] one of them, as there, presenting a man's legs, the other a woman's flounces, both in the act of walking and with axe-like appendages behind that give them

[1] These, as noted above (p. 7), are from *Cupressus horizontalis*, surviving thickets of which are still to be found.

[2] From my copy of the tablet (no. 27 of my own series), made with the kind permission of Prof. F. Halbherr.

[3] *P. of M.*, i, pp. 615, 616, and Fig. 452, *b*, 18.

the appearance of winged figures. The first, which occurs in line 1 of face *a*, appears as the end of a group beginning with the 'wheel' sign and followed by numerical marks = 60. On another tablet where these two signs occur the male figure is immediately preceded by the wheel. Next, on face *a*, is the forepart of a ship with three decimal marks, and uncertain units succeeded (line 2) by 𐄪, derived from a double axe, with seven units, and the female figure followed by numerical signs = 18. This figure with its flounced skirts, advancing to the right, derives great interest from the object it holds forth. One end of this is slightly damaged, but there can be hardly any doubt that the bar here held horizontally, terminating in a curved line, is intended for an anchor, though on another Hagia Triada tablet (Fig. 146),[1] where a flounced figure of this type carries an analogous object on her shoulder, the terminal cross-piece is straighter. To the Homeric Greeks the true anchor seems to have been unknown, big stones (*εὐναί*) being made use of in its place. But it looks as if a simple form of metal anchor, in which, however, there is as yet no trace of a fluke, was already known to the Minoans.

Goddess apparently holding Anchor.

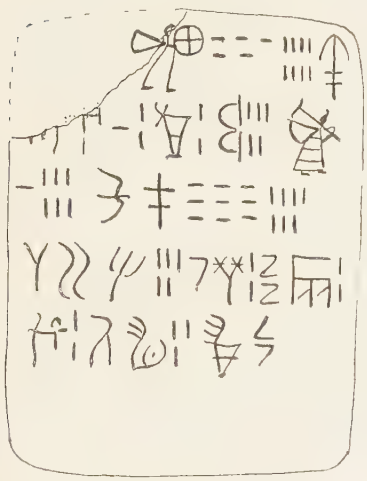


FIG. 146. TABLET OF LINEAR CLASS A FROM HAGIA TRIADA WITH WINGED PERSONAGE HOLDING SIMILAR OBJECT.

In this flounced emblematic figure, compounded with the double axe, holding, as it seems, an anchor and coupled with the ship-ideograph, may we not recognize the symbolization of the Minoan Goddess as Mistress of the Sea? There is, indeed, sufficient evidence that there was a marine side to her spiritual being. The floor of her shrines was paved with sea-shells and water-worn pebbles, flying-fish amidst sea-spray are found amongst the adornment of their walls, and rock-work, again, and sea creatures appear among the reliefs on her sacred vessels. But the clearest proof is afforded by the gold signet-ring found by Mr. Seager in a L. M. I burial at Mochlos (Fig. 147).[2] Here, in a bark one end of which terminates in what appears

Marine Aspect of Minoan Goddess.

Advent of Goddess in Sacred Bark on Mochlos Ring.

[1] No. 40 of my series.

[2] By Mr. Seager's kind permission I was able to give an account of this interesting signet type to the Third International Congress for the History of Religions (Oxford, 1908, vol. ii, pp. 195, 196 and Figure). He published it himself in *Explorations in the Isle of Mochlos* (1912), pp. 89–91 and Fig. 52. (The ring has since been stolen from the Candia Museum.) It is there suggested that

to be a dog's head and the other in a fish's tail, the Goddess is depicted as arriving at what seems to be a port on a rocky shore, where stands a building in which we must recognize one of her sanctuaries. She has dismounted from her throne, which is overshadowed by her sacred tree, and is in the act of disembarking.[1]

Signet-ring from Harbour Town of Knossos.

A very interesting pendant to this has now been supplied by another gold signet-ring recently found near Candia[2] and apparently derived from the harbour town of Knossos (Fig. 147, *b*). Here the tree and the Goddess before it, in short skirts—an archaic characteristic—appear in the field

a *b*

Fig. 147. *a*, Gold Signet-ring from Mochlos showing Advent of Goddess and Sacred Tree at a Sanctuary on the Coast. *b*, Gold Signet-ring from near Candia (1927), showing Vessel about to depart, Goddess, Tree, and Pillar of Shrine ($\frac{4}{1}$).

above, as if in mid air. At the prow of the vessel is what from its conical outline below must be interpreted as another female figure, probably a reduplication of the Goddess. The vessel in this case is clearly leaving port: the steersman holds the stern paddle and four oarsmen in front of him are pulling their oars which, however, are not shown. Beneath are indicated sea waves and a school of three dolphins, about to follow the vessel. On the shore, in front of a column indicative of the presence of a sanctuary, are two standing figures, male and female, the male personage apparently saluting the departing Goddess, who may be returning with her sacred tree to another holy spot. Here the two figures and the sanctuary behind present an obvious analogy to the scene on the Tiryns signet (Fig. 142).

The marine aspect of the Goddess survives in her later forms as Diktynna or Britomartis, equated with Artemis Delphinia.[3] It suggests

the 'flaming' object in the field may be an '8-shaped Minoan shield', but it seems to me to present a closer resemblance to the shrubs springing from rocks, seen on similar signet-rings.

[1] For the Sacred Tree in association with the Minoan Goddess see A. E., *Myc. Tree and Pillar Cult*, p. 4 seqq. and p. 28 seqq., &c.

[2] Acquired by an archaeological traveller in 1927.

[3] See below, § 67.

curious parallels with the Syrian Atargatis—the Derketo of Ascalon—as well as certain representations of the shrine of the Paphian Goddess in which a harbour with fish appears immediately before it or a boat is seen at the temple steps. The Advent of the Goddess from the sea, which recalls so much in later lore, is the more interesting from the fact that her arboreal form here accompanies her on the voyage. At Tyre, also, the sacred olive tree came forth from the sea to take its place between the Ambrosian Stones within the sanctuary.

FIG. 148. ISIS PELAGIA SAILING HER RAFT ON CONTORNIATE COIN OF FOURTH CENTURY A.D.

Comparison with Isis Pelagia: Hagia Pelagia.

Attention has already been drawn to the fact that the cult of the old Mediterranean Sea-Goddess, Isis Pharia, otherwise Pelagia,[1] still survives in Crete hard by the remains of a Minoan port beyond the headland West of Candia, where the little church of Hagia Pelagia marks the now untenanted site.

But the attachment of the cult of this latter-day Saint to Minoan maritime sites, some of them here described, can be shown to be a recurring feature in a series of cases. A little church thus dedicated rises near the sea coast by Gournià and another on a rocky islet off Mallia. So, too, the church of St. Phanourios in the village of Meskinià, set there, beside a prominent limestone crag, on a platform overlooking, on the Eastern side, the mouth of the old Kairatos river and the main harbour of Knossos, has partly superseded, partly absorbed the cult of an earlier shrine of Hagia Pelagia built into a grot immediately below. The upper church combines the icons of both saints, and it was interesting to note among votive offerings suspended to them silver tablets with embossed figures of ships under sail.[2]

Can we doubt that the worship of the Christian Saint on these sites has been taken over from a much more ancient cult? The assimilation was in this case suggested not so much by anything specially applicable in the history of the Saint herself—a pious lady of Antioch who lived in the latter part of the third century [3]—but by the accident of her name, Pelagia.

[1] See especially W. Drexler, *Lexikon d. gr. u. röm. Myth.*, ii, Art. *Isis* (p. 474 seqq. *Göttin des Meeres*).

[2] Among other votive offerings in silver plate were various parts of the body, such as heads, eyes, female breasts, legs and hands, swathed infants and children of both sexes. The dedication of these, especially the human limbs, curiously recalls that of Minoan sanctuaries like that on the summit of Juktas or the rock-shelter of Palaikastro. The embossed silver tablets on the other hand find an equally early parallel in the embossed votive bronze plate from the Diktaean Cave (*P. of M.*, i, p. 623, Fig. 47).

[3] Her proper ecclesiastical description is

Her Primitive Sailing Raft with 'Fixed Rudder'.

To Isis Pelagia, otherwise Isis Pharia, was attributed the invention of the sail, and it is interesting to note that on a contorniate medal (Fig. 148)[1] a really antiquarian illustration is supplied of this tradition, the Goddess standing on a primitive log-raft, with raised prow—such as those still in use at Madras—to hold the upper corners of the sail before the wind. At times she holds the rudder, and on all occasions was the protectress of storm-tossed mariners. Thus, by an almost inevitable tradition, this divinity, whose Classical and Egyptian guise must in Crete certainly have covered a much earlier Minoan personality, was adopted by Orthodox Christianity to fulfil an equivalent function—a beautiful form of religious evolution.

May we even venture to discern—still visible through the intervening medium—a real reflection of the marine aspect of the Minoan Virgin Mother in that attributed to the Madonna by the early hymn, as 'Star of the Sea'?[2]

Ave, maris stella,
Dei Mater alma
Atque semper Virgo,
Felix coeli porta.

simply the 'holy Pelagia' (ὅσια Πελαγία). In popular speech, however, she is constantly ἅγια, and often receives this title on her icons.

[1] Kenner, *Die Münzsammlung des Stiftes St. Florian*, Pl. VII, 20 and pp. 201, 202. Isis Pharia (or Pelagia) wears a lotus flower on her head. The obverse of the medal shows the head of Serapis. The primitive character of the vessel in this representation seems to have escaped observation: the Goddess usually stands on an ordinary galley. The medal may date from the time of Julian.

[2] The Hymn to the Virgin in this form dates from the tenth century. See *Hymnarium, Blüthen lateinischer Kirchenpoesie*, Halle, H. Petersen, 2nd ed., 1868. (This reference was kindly supplied me by Dr. Robert Bridges.) It may be noted that the Minoan Goddess is not infrequently depicted between two stars.

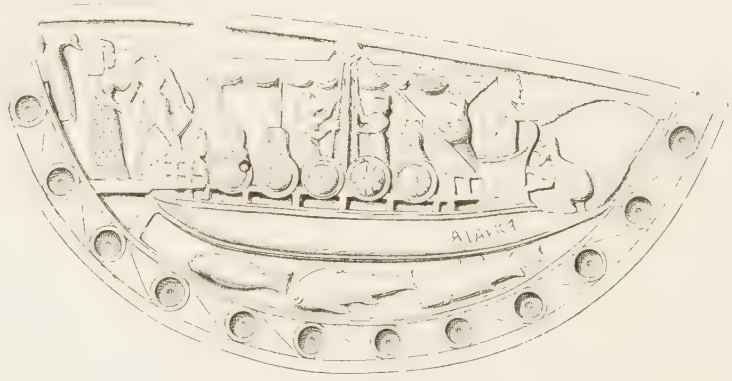


Fig. 148 *bis*. Ivory Relief of a Warship from Sanctuary of Orthia, Sparta (*B. S. A.*, xiii, Pl. 4).

§ 43. Reactions of Coastal Route East; Syro-Egyptian Vases, Bull 'Rhytons', and Cylinders.

Harbour Town of Knossos, link with Coastal Route East; Discovery of sealings resembling those of Zakro but of Vasilikì clay; Excavations at Anemomylia; Alabaster (calcite) vase from site, in form of squatting, enceinte female—Syro-Egyptian type, of Eighteenth Dynasty date; Similar specimen from Byblos; Analogous Eleventh Dynasty pot; Suggested prototype of E. M. III vase from Mochlos; Type of Mother Goddess; Oriental origin of Minoan bull 'rhytons'; Early Sumerian prototypes from Erech; Inlaid spots, as Minoan; Western extension of early Sumerian dominion; Evidences of Oriental influence on Crete about the close of E. M. III and in M. M. I a; Cretan finds of Babylonian Cylinders—specimen from littoral of Knossos.

Harbour Town of Knossos. Link with Coastal Route East.

In the main the importance attained by the haven of Minoan Knossos was in a less degree due to any special excellence of its own. It was rather resultant from the pressing need of a maritime outlet for a great centre of population which had grown up from immemorial time in a fertile district of the Island, and, later, as the Northern sea-gate of the Central transit route.

Over and above any traffic with the Cyclades and farther Aegean shores the harbour town seems to have stood in specially intimate relations with a coastal line linking it both by sea and land with more Eastern regions of Crete itself. First amongst these must be reckoned Niru Khani, the well-defined Minoan port which in some degree may have served as a second harbour for Knossos in that direction. Farther along the coast is the considerable civic foundation of Mallia, marked by one of the earliest of the Cretan Palaces, which formed in fact the terminal station of a transit route on that side, traversing the upland valley of Mirabello, and thence bringing it into connexion with the ports of the Easternmost Cretan region and either, past Vasilikì, across the isthmus of Girapetra to Hierapetra, or by the Siteia coastal route and eventually to Palaikastro and Zakro, at the extreme East end of the Island. These ports were the natural points of arrival for Oriental commerce.

These relations, indeed, have a direct bearing on some suggestive finds that have occurred in the most flourishing quarter of the harbour town of Knossos.

Sealings found resembling those of Zakro but of Vasilikì clay.

It came to my knowledge that at a spot near the Windmills (τὰ Ἀνεμομύλια) above referred to, clay sealings had from time to time been brought out in the course of cultivation,[1] resembling those of the great Zakro deposit.[2] It was possible to obtain in 1922 two recently discovered

Fig. 149. Clay Sealings of Zakro Type from Harbour Town, Knossos. ($\frac{2}{1}$)

specimens of these (Fig. 149, *a*, *b*), an examination of which showed that they not only corresponded with the designs on examples of the Zakro series, but that these were arranged in the same order.[3] That the stamping had been done by the same official, probably as part of the same Customs-control, was therefore clear, but the remarkable feature was that the clay of

[1] One from this site was acquired by Mr. Seager in 1918, and besides the two that passed into my own possession, I was able to trace the existence of a fourth.

[2] D. G. Hogarth, *The Zakro Sealings* (*J. H. S.*, xxii (1902), p. 76 seqq.), and cf. *P. of M.*, i, p. 678 and pp. 699, 700. So far as it is possible to ascertain, no later discoveries of these sealings have been made at Zakro itself.

[3] Fig. 149, *a*, corresponds to Zakro (*op. cit.*), Nos. 21 (capped winged figure), 23 (variant of 'Eagle lady'), 61 (horned animal mask) similarly grouped, Fig. 149, *b*, to Nos. 80 (winged bucranium with loop), 134 (geometrical design of curves arranged in a cruciform manner. Oval designs of the same kind appear on Twelfth Dynasty scarabs, cf. Fig. 110 A, p. 200 above, *f*, *o*, *p*). In this case, as on the parallel examples from Zakro, the third side was blank.

which the seals are composed, with its fine particles of copper, is altogether different from that used at Zakro either for seal-impressions, tablets, or pottery.[1] On the other hand, it exactly corresponds with the very characteristic material of the potters of Vasilikì, on the North side of the Hierapetra watershed, and must have reference to its port on the Gulf of Mirabello, the duties of the fiscal officers being evidently of an itinerant kind. The discovery, on the other hand, of these specimens of the Vasilikì class in the harbour town of Knossos may point to a direct maritime connexion with the port of this very ancient Minoan centre—the link with Zakro being supplied by the easy land passage rather than by the circuitous and dangerous voyage round the iron cliffs of Cape Sidero.

Excavation at Anemomylia.

This interesting discovery led me during my campaign of 1922 to undertake a small excavation in the area of the old harbour town of Knossos bordering the high road, where the sealings had come to light at the spot called Anemomylia or the 'Windmills'. The soil here, unfortunately, was less than a metre deep, and no further objects of the kind were forthcoming. This strip of land proved, however, to form part of the interior of a considerable building, the North wall of which was partly traceable in a Westerly direction and consisted of good limestone blocks, some of which incorporated in a neighbouring well-head, showed incised signs of the M. M. III class. Within this it was possible to explore part of a chamber with L. M. III *b* pottery in the surface layer, beneath this, again, fragments of L. M. I vessels on a pavement of irregular green schist slabs, and, at a depth of about a metre, a floor-level with M. M. III *a* sherds. In the adjoining plot to the East of this were remains of a L. M. I *pithos*.

Discovery of Alabaster Vase in form of Squatting Female Figure.

In the neighbouring region, which produced so many remains of Minoan stone vessels, there came to light an alabaster vase of exotic character, reproduced in Fig. 150.[2] It has a ridged mouthpiece, with part of a loop handle attached to it behind, and displays a female figure, the proportions of which are not simply obese, but—as is even better shown by analogous examples—are intended to denote an advanced stage of pregnancy. Her legs are bent under her, and her hands pressed against the lower part of her

[1] I have personally examined the material of the specimens from Zakro in the Candia Museum, including hundreds of the sealings.

[2] This vessel is of marble-like 'alabaster' (to use the popular term), but the material, more strictly speaking, is calcite. It was obtained through the good offices of the late Mr. Richard Seager. From the information that he received there seems to be no doubt that it was found on this part of the site. His own impression was that it might be of Early Minoan fabric, but he was unaware of the parallels from Byblos and elsewhere.

abdomen. Her breasts are much flattened out, probably to suit the lapidary's convenience, and her hair, which presents a smooth surface, as if contained in some kind of net, falls down to the middle of her back. At the base (see Fig. 150) is a small perforation, showing that it had been used by its Cretan possessor as a 'rhyton' for pouring liquids.

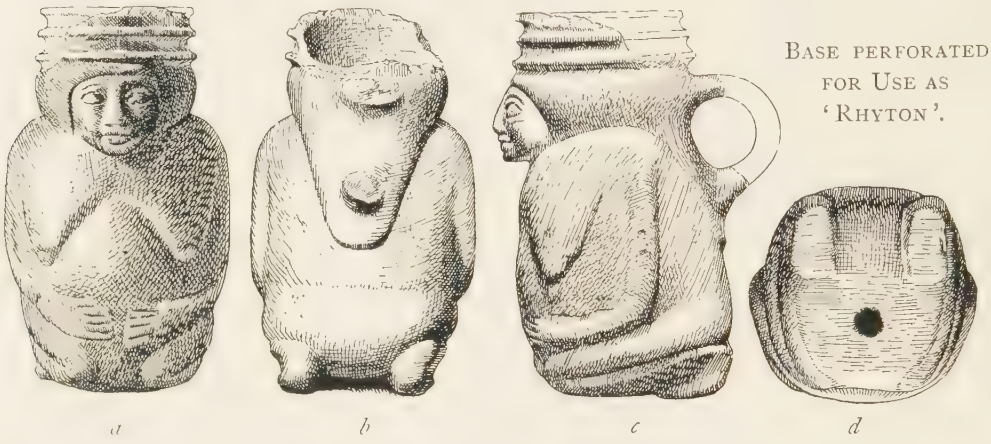


Fig. 150. Alabaster Vessel of Syro-Egyptian Type from Harbour Town, Knossos; used as 'Rhyton'.

Analogous Syro-Egyptian Vessels.

This type of alabaster vessel belongs to a class already known from Egyptian finds, and which have been attributed to the latter part of the Eighteenth or the Nineteenth Dynasty.[1] As a matter of fact, a closely

[1] Good examples of this type are given by Miss M. A. Murray, *Figure Vases in Egypt* (*B. Sch. of Arch. in Egypt, Historical Studies*, vol. ii, 1911), p. 40 seqq. and Pl. XXIV, 44 seqq. Two specimens are mentioned by Fr. W. von Bissing, *Cat. &c. du Musée de Caire: Steingefässe*, nos. 18418 and 18421 (see inset). The ridged profile of the mouthpiece of the specimen from Knossos itself recalls a distinctive feature of a well-known class of alabaster vessels of low cylindrical shape, some with a base or pedestal, that occur in deposits of late Eighteenth Dynasty and Nineteenth Dynasty date. One of these was also found in the cemetery at Rifeh (Petrie, *Gizeh and Rifeh*, Pl. XXVII A, no. 262: the tomb-group not given). Another (in the British Museum) is from the tomb of Amenhotep II (*c.* 1447–1415 B.C.) and another (in the Ashmolean Museum) from a burnt deposit at Gurob of Amenhotep III's time (*c.* 1415–1380 B.C.): Petrie, *Illahun, Kahun and Gurob*, Pl. XVII, 10 and cf. the parallel group *ib.*, Pl. XX, 8 'end of the Eighteenth Dynasty'. Another more or less contemporary specimen occurred in a tomb of the cemetery at Enkomi (Salamis), Cyprus (*B. M. Excavations*, p. 35, Tomb 66, no. 1041), with pedestal. Dr. D. Mackenzie has published another from Ain Shems (*Palestine Explora-*

similar specimen was found at Rifeh in a tomb of Eighteenth Dynasty associations. It is, moreover, impossible to mistake the close relation of these *alabastra* to certain forms of small clay vases, generally showing a highly burnished surface and a brilliant black and red colouring,[1] that are found in Egyptian tombs of early Eighteenth Dynasty date, and which have no doubt rightly been classed as Syro-Egyptian.

FIG. 151. ALABASTER VESSEL FROM BYBLOS (IN BRITISH MUSEUM).

FIG. 152. UPPER PART OF CLAY VESSEL, XITH DYNASTY, RIFEH.

The looped handle behind, seen both on these and on the *alabastra* in question, is itself a non-Egyptian feature. How long this class of vessel survived on the Syrian side is shown, indeed, by a hideous Semitic offshoot in rough clay, found in one of the latest tombs at Bethshemesh. Here the head, with a similar handle attached to the back, is that of a hook-nosed long-bearded male figure, who grasps the base of an outlet in the middle of his breast, showing that it was a libation vessel.[2]

It is of special interest, as illustrating the Syrian connexions of the

tion Fund, 1911, p. 68 seqq., and Fig. 15). For others from the Fourth City of Lachish (Tell el Hesy) see F. J. Bliss, *Mound of Many Cities*, p. 118, no. 224). For a very late example from Gezer see R. A. S. Macalister, *Excavations at Gezer*, Pl. 106. 4.

[1] See Murray, *op. cit.*, Plates XXIV, XXV, 48 seqq.

[2] Duncan Mackenzie, *The Tombs of Bethshemesh* (*Palestine Exploration Fund Annual*, 1912–13), Pl. XLVIII and pp. 82, 83 from Tomb 7. This tomb belongs to the Third Bethshemesh Period, and from the occurrence of a fibula of the triangular Syro-Anatolian type in the contemporary tomb, group 5, we may infer that this object was not earlier in date than about 800 B.C. Dr. Mackenzie lays stress on the ritual character of the vessel, and pertinently suggests that the male divinity apparently represented may be Shemesh.

Similar Alabastron from Byblos.

alabaster vase type from the harbour town of Knossos, that there exists in the British Museum a similar specimen in the same material from Byblos, reproduced in Fig. 151. Here, as in some other examples, the hair is covered with drapery, which even assumes a turban-like aspect.

Suggested Prototypes of Mochlos Pot.

There is good warrant for believing that some of the ceramic forms, at any rate, of this type are of very old tradition. The upper part of a plain clay vessel was found at Dendereh in an Eleventh Dynasty deposit, shaped in form of a woman with her arms folded beneath her breasts (Fig. 152).[1]

Fig. 153. Painted Vase from Mochlos Tomb (E. M. III).

The occurrence of this early example of what seems to have been essentially the same type of vase lends force to a comparison suggested by a remarkable Cretan type belonging to the close of the Early Minoan Age.

This is a painted vessel of obese female form, though flattened off below without any trace of legs, found by Mr. Seager in Tomb XII at Mochlos[2] (Fig. 153). In this case the hands are placed rather higher than on the *alabastron* and squeeze the breasts—an attitude more nearly approaching the Eleventh Dynasty vessel, of which the upper part is shown in Fig. 152.

Type of Mother Goddess = Syrian Astarte.

The discovery on Cretan soil of a stone vessel, apparently of Syro-Egyptian type, which reproduces so many characteristics of this abnormal Minoan form greatly enhances the probability that the prototype of the latter is to be sought in this Oriental class. The matronly proportions and

[1] Petrie, *Dendereh*, Pl. XXI, in the Ashmolean Museum.

[2] *Explorations in the Island of Mochlos*, p. 64, XIII *g*, and Fig. 34 (from which Fig. 153 is taken); see, too, *P. of M.*, i, pp. 115, 116. Mr. Seager ascribes the vessel to the Third Early Minoan Period. The spiraliform **S** of the painted decoration and the linked **C**-curves certainly preserve the Early Minoan tradition (see above, p. 195).

attitude of the figure illustrated by the Mochlos vase seems, as Mr. Seager has observed,[1] to bear reference to a Mother Goddess, and we may here, as in other cases, trace an assimilation with some form of the Syrian Astarte. The type itself would, therefore, in all probability have been introduced under religious influence, and in the case of the *alabastron* the adaptation of the vessel, apparently by Cretan hands, for use as a 'rhyton' has special significance. A remarkable example of one of these alabaster vessels shows, indeed, the religious sense in which the Egyptians themselves interpreted them. This vase, as usual, is formed in the shape of a parturient female figure, but the lower parts of the legs are assimilated to those of the Hippopotamus Goddess Taurt,[2] and its hands rest on the *Sa*, the magical protective symbol of that Goddess. This identification with the beneficent Hippopotamus Goddess, the Mother of the Sun-God, also brings the vessel into a close relation with Hathor.

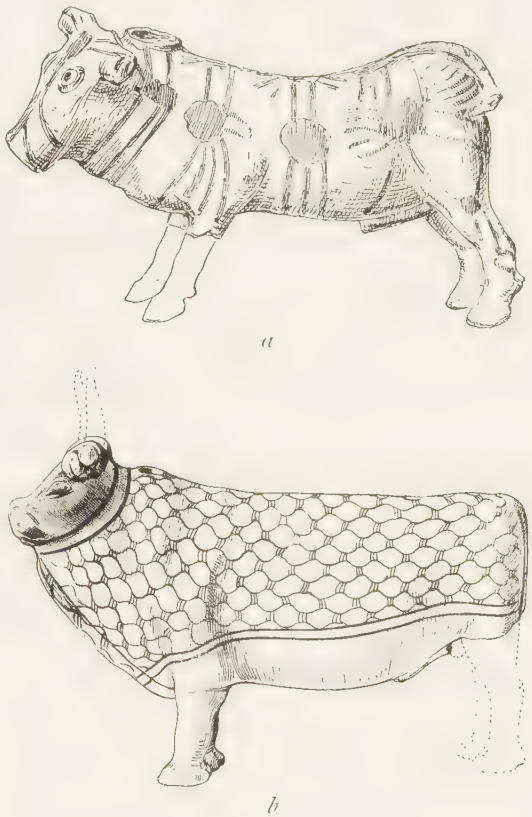


FIG. 154. BULL 'RHYTONS'; *a*, M. M. I *a* (MOCHLOS), AND *b*, L. M. I *b* (PSEIRA).

The conversion of this Syro-Egyptian type of *alabastron* into a 'rhyton' is itself an unique phenomenon. But it is clear that a whole family of Minoan libation vessels took its origin from the Oriental side. This is the class of 'rhytons' in the form of a bull, sometimes, as already shown,[3] associated with acrobatic figures having reference to the bull-grappling sports (Fig. 155), themselves, it would appear, of early Asianic origin.[4] These bull-shaped 'rhytons', which seem

Oriental origin of Minoan Bull 'Rhytons'.

[1] *Op. cit.*, p. 64.

[2] Formerly in the MacGregor Collection (see Murray, *op. cit.*, Pl. XXIV, 46).

[3] *P. of M.*, i, pp. 188–90, and Fig. 137, *a–d*.

[4] For a Cappadocian seal-impression with an illustration of such sports, see *P. of M.*, i, p. 15 and n. 3, and cf. Pinches, *Liverpool Annals of Archaeology, &c.*, i, p. 76 seqq., no. 23. The sealed envelope on which the impression occurs is dated by Professor Sayce, *c.* 2400 B.C.

already to have had an extensive vogue in Crete by the very beginning of the Middle Minoan Age (M. M. I *a*), also clearly served a ritual function. They show a large aperture in the upper part of the neck and a smaller orifice at the mouth for pouring out libations. They occur, as has been already noted, in the early *tholoi* of Mesarà,[1] but they seem to have had an especially abiding connexion with Eastern Crete. Examples have been found there, not only in a M. M. I *a* deposit of a Mochlos tomb,[2] but at Pseira in association with L. M. I pottery.[3] In the latter case the colour

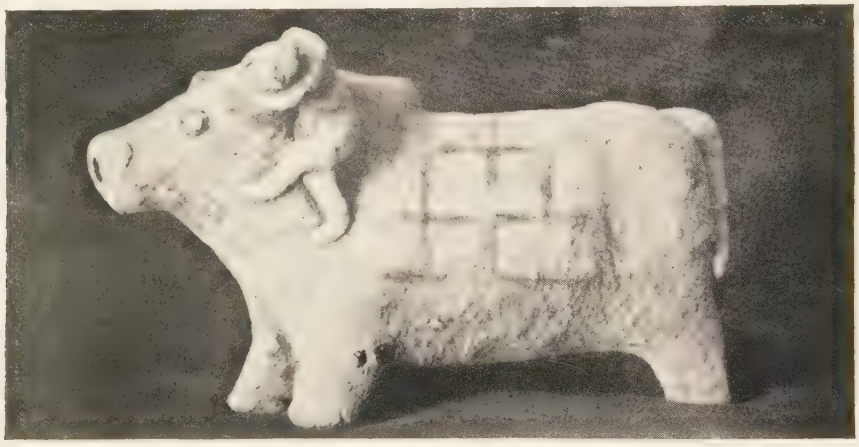


FIG. 155. M. M. III *a* BULL 'RHYTON' WITH HORNS GRAPPLED BY ACROBATIC FIGURE AND TRACES OF COVERING. EARLY *THOLLOS*, PORTÌ.

of the sacred bulls is indicated by a chalky white slip, and, as on the earlier series, the animal has a ceremonial covering. On the early specimen (Fig. 154, *a*) the cross lines of such a covering are clearly visible. On the later example (Fig. 154, *b*) we see an elaborate netting. The orange red or purple colouring seen on several of these later 'rhytons' is itself an archaic survival.[4]

Early Sumerian Bull 'Rhytons'.

In view of recent Sumerian discoveries there can be no doubt as to the Oriental source of this class of objects. In the Roselle Collection[5] at New

[1] Reference can now be made to Xanthudides, *Vaulted Tombs of Mesarà* (transl. Droop), Pl. II, 4126, Pl. XXXVII, 5052.

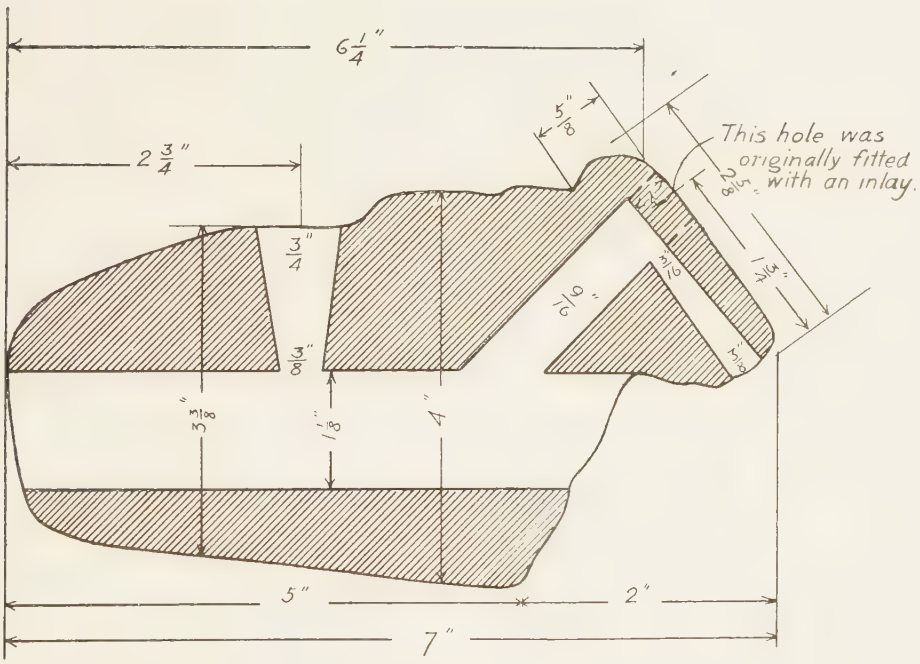
[2] Seager, *op. cit.*, p. 60, and Fig. 29, Tomb XI.

[3] Seager, *Excavations on the Island of Pseira*, pp. 22, 23, Fig. 7, and Pl. IX.

[4] See Seager, *op. cit.*, p. 23.

[5] Through the courtesy of Mr. Walter A. Roselle, of New York, I am able to describe and illustrate this interesting specimen as well as the bull's head given below in Fig. 157. See, too, the publication by Mr. Frederic Fairchild Sherman in *Art in America and Elsewhere*, xi (1923), p. 322 seqq., with a note by Dr. H. R. Hall and myself. Another specimen of a bull 'rhyton' from the same site has been since acquired by the British Museum.

a



b

FIG. 156. *a*, EARLY SUMERIAN BULL 'RHYTON' OF STEATITE, FROM ERECH (WARKA); *b*, SECTION.

York is a steatite bull, $7\frac{1}{4}$ inches long and $4\frac{1}{4}$ inches high, which clearly answers to the 'rhyton' type (Fig. 156). It has a hollow channel open at the back $1\frac{1}{8}$ inch in diameter, bored lengthwise along almost the entire body, with a funnel-shaped hole drilled through to it from the top for the pouring in of liquids and a narrow outlet through the mouth (see Section, Fig. 156, *b*). Part of the breast of the animal, that must have shut in the central hollow on that side, is broken off, and its back end would have been closed, for use, perhaps, by a wooden stopper which, when removed, enabled the interior to be cleaned. The bull is couchant, with his forelegs and hind-legs under him, and the end of his tail curled round over his body.

Inlaid spots—as Minoan.

There are hollows for the attachment of the horns and ears and for the inlaying of the eyes and of trefoil-shaped spots on the flanks and breast. These features, it will be observed, are all paralleled by Minoan 'rhytons', though the form of the plaques for inlaying the spots, of which specimens were found in the 'Tomb of the Double Axes' at Knossos,[1] was, it would appear, generally quatrefoil—in sympathy with the star crosses of Hathor's Cow.[2]

Early Sumerian Inlays.

A second and more fragmentary specimen, also of steatite, from the same site (Fig. 157), showing the head of a similar bull with perforated nozzle and central hollow, is of finer workmanship than the other and throws some further light on the details. There are small holes for pins to secure the ends of the horns,[3] and the eyes were inlaid with small ivory disks, with a central perforation for the insertion of some other material, probably bitumen. A fragment of a heifer's head of pink stone, found at Tello,[4] gives the inlay of the eye in a more complete form, the white being formed of an univalve shell, part of the spire of which is visible on its lower surface, while the pupil consists of a small disk of bitumen. Old Chaldaea is the true original home of the art of inlaying. The embedding of decorative materials, such as mother of pearl or laminations of other shells derived from the Persian Gulf, or even painted clay plaques, in the bitumen surfaces of the indigenous structures, was an obvious form of decoration, and copious illustrations of this have been supplied by the results of the recent excavations at Ur, Kish, and elsewhere. There can be little doubt that it was from this

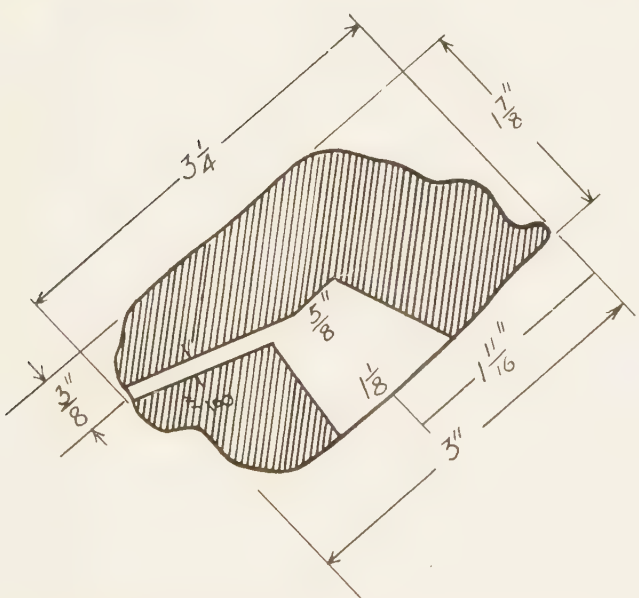
[1] A. E., *Tomb of the Double Axes, &c.*, pp. 52, 53, and Fig. 70; Quaritch, 1914 (*Archaeologia*, vol. lxv).

[2] See *P. of M.*, i, pp. 513–15, and Fig. 370.

[3] Compare the method by which the horns of the fine bull's head 'rhyton' of steatite from the Little Palace at Knossos were attached (*Tomb of the Double Axes, &c.*, p. 81, Fig. 88, *a*, *b*), and see below, p. 527 seqq., Fig. 331.

[4] E. de Sarzec, *Découvertes en Chaldée*, i, pp. 233, 234; ii, Pl. I, ter. 4.

a



b

FIG. 157. *a*, INLAID HEAD OF BULL 'RHYTON' (EARLY SUMERIAN); *b*, SECTION

Prototypes of Nilotic and Cretan inlays?

Mesopotamian field that the art was taken over by the late pre-dynastic craftsmen of the Nile Valley, their native glaze-ware and, at times, some actual glass being made use of for the inlays. It would appear that Minoan Crete, where, as has been shown, the art of inlaying greatly flourished, drew its inspiration not only from this Nilotic source, but, at a somewhat later date, from the Eastern home-lands of the art.

The bull and head, above described, were found on the site of Erech (Warka) on the lower Euphrates, and another specimen from the same site in black limestone, perfect except for the horns and ears that have been socketed into it, is among the recent acquisitions of the British Museum.[1] It has a triangular depression on the forehead for some inlaying material, a sacred mark that is often found in bronze votive figures of bulls of much later date. The primitive bull 'rhytons' of Erech may themselves be safely ascribed to early Sumerian times and to a date round about 3000 B. C. The greatest age of Erech belongs to the time when Lugal-zaggisi of Umma,[2]—having first captured Lagash, till then the leading City of Sumer and Akkad,—had transferred his capital thither and taken by preference the title of King of Erech. If we may suppose that this relic belongs to this flourishing period (*c.* 2800 B. C.) it would, indeed, have a special interest, since Lugal-zaggisi was the first Sumerian prince to make the claim that he had extended his dominion to the Mediterranean.[3] Although it does not seem likely that he established any direct dominion over the Syrian coastlands, such as Sargon (Shar-Gani-sharri) of Akkad seems to have effected about 150 years later, the statement may well refer to a victorious raid,[4] securing a real extension of Sumerian influence on that side. Of Sargon it is definitely stated that he subdued Amurru or the 'Western Land' in the early years of his reign (*c.* 2650).

Results of Western extension of influence of Sumer and Akkad.

Syria as a link with Crete.

It is, indeed, a curious illustration of the widely ramifying relations of Minoan culture that a class of libation vessels intimately connected with its central cult should, in the first instance, have been derived, probably through

[1] Presented by Major V. E. Mocatta, in 1924.

[2] For his conquest of Lagash and the empire over which he subsequently ruled, see especially, L. W. King, *History of Sumer and Akkad*, p. 188 seqq.

[3] In the inscription giving his title reconstructed from the fragments of stalagmite vases found in the course of the excavations of the University of Pennsylvania at Nippur (Hilprecht, *Old Babylonian Inscriptions*, Part II, no. 87, Pl. 38 seqq.), Lugal-zaggisi states that Enlil (the chief of the Gods) had 'made straight his path from the Lower Sea' (the Persian Gulf) over 'the Euphrates and Tigris unto the Upper Sea' (the Mediterranean), see Hilprecht, *Explorations in Bible Lands*, p. 38, and King, *op. cit.*, p. 197.

[4] King, *op. cit.*, p. 198.

some Syrian offshoot, from an old Chaldaean source, while at a somewhat later date the idea was adapted to ostrich-egg flasks, the original range of which is to be sought in the Libyan Desert.

As the earliest Cretan imitations of the bull 'rhytons' hardly appear before the approximate date 2100 B. C., it seems probable that their immediate sources should be sought in the Syrian or Anatolian direction. Zoomorphic vessels continually recur among the primitive ceramic forms of a wide area

FIG. 158. BABYLONIAN CYLINDER OF HAEMATITE, FROM NEAR CANDIA.

of Anterior Asia, and are well represented at Hissarlik. What look like true bull 'rhytons', indeed, are already found in the Copper Age Tombs of Cyprus,[1] but, though the opening is seen above the neck, there is no perforation through the nozzle.

Evidence of strong influence from E. at close of E. M. I.

The conclusion already reached that jugs of the Syrian type, representing a Mother Goddess, were imitated in Crete at about the same date as the above confirms the view that about the close of the Early and the beginning of the Middle Minoan Age direct communications were opened out with the North-Easternmost Mediterranean angle. Evidence of this has been already given in the shape of the Babylonian cylinder found in the *tholos* ossuary of Platanos,[2] which lies not far from the point where the

[1] A specimen from Dali is illustrated by Cesnola, *Cyprus*, Pl. VIII. I may refer to what I have written on this subject in *Tomb of the Double Axes, &c.*, p. 90 seqq. (*Archaeologia*, lxv, 1914). A later bull's head 'rhyton' from Ain Tab in Commagene is given there on p. 94 (Fig. 97).

[2] *P. of M.*, i, pp. 197, 198, and Fig. 146.

Cretan Finds of Babylonian cylinders:

central transit route abuts on the Mesarà Plain. Another similar discovery has a special interest from its direct connexion with the trade-line along the Northern Coast of the Island, which must have played the chief part in these Oriental relations.

Specimen from littoral of Knossos.

The haematite cylinder, reproduced in Fig. 158, was found on the Western outskirts of Candia.[1] It is of the same style and of about the same date as that of Platanos, and must be referred like it to the First Babylonian dynasty.[2] In the centre is seen Gilgamesh, naked, holding the 'spouting vase' in both hands. To the right a votary offers a kid to Shamas, the Sun-God, who wears a peaked head-piece with many horns, and holds a notched knife, above which appears the emblem of the sun and moon. To the left stands a bearded figure, identified with the mace-bearing deity Ramman Martu, the national God of the Amurru, the founders of the First Babylonian dynasty, while, opposite him, a Goddess,[3] in a horned *mitra* and the flounced *καυνάκης*, intercedes for the owner of the seal. This divine pair reappears on the Platanos cylinder.

The inscription gives the name of the owner as 'Apillim, son of Marduk-mu-salim, servant of Nabus'.[4]

Not only did actual specimens of Babylonian cylinder seals thus find their way to Crete at this epoch, but the Oriental use of the clay tablet for documentary records can be shown to go back to the same early date. The evidence supplied by the Hieroglyphic Deposit at Knossos has now been supplemented by the discovery of a similar hoard of tablets and clay sealings in the Palace of Mallia, the circumstances of which fix the date of the earliest class to the first half of the First Middle Minoan Period (M. M. I *a*).

[1] On the Stamatakis property. The cylinder is now in the Candia Museum.

[2] Professor L. Legrain, who supplied a note on this cylinder to the Director of the Candia Museum, agrees with this opinion. In the above account I am indebted to his description of the design.

[3] Professor Legrain would identify the Goddess with Aja, wife of Shamas. In the account of the Platanos seal the alternative view is put forward with regard to a similar interceding Goddess that she was Ishtar as the equivalent of the Sumerian Goddess Innini.

[4] Professor Legrain reads it: *A-pi-il-lim Marie Mardukmu Salim Waradᵢₑ Nabium.*

§ 44. Mallia and Niru Khani: Insignia of Priest-King and Propagandist Depot.

M. M. I a Culture marked by direct Eastern contact; Suggestions of Anatolian relations; First appearance of Cretan Palaces—Early example at Mallia, East of Knossos; Its M. M. I a date; Analogies with Plan of Sendjirli; Insignia of Priest-King found in Mallia Palace; Royal Apartments and Loggia; Find of Ceremonial Arms—Dagger, and Long Sword of State; Ritual Axe with forepart of Leopard; Oriental parallels for its Zoomorphic character; Sumerian prototypes; Mallia weapons illustrate dual aspect of Priest-Kings; Evidences of their theocratic functions; Anatolian and Syrian range of Minoan Cult of Mother and Child; Emotional element in Minoan Religion; Root Affinities with Christian ideas; Mourning rites over grave of Mortal God; Ideas of After-Life symbolized by chrysalises and butterflies on 'Ring of Nestor'; 'Tomb of Double Axes' at Knossos, also a Shrine; Suggestions of moral side to Minoan Religion; Weighing of the butterfly Soul; Consistent decorum of Minoan Art; Was there a propagandist element in the Religion? Presumptions supplied by remains at Niru Khani; Exceptional character of building; Huge ritual Double Axes; Stacks of Tripod Altars; 'Sacral Knot' on wall; A warehouse for distribution of Cult objects; Export for Overseas propaganda.

M. M. I *a* Culture marked by direct Eastern contact.

The establishment of a direct contact with the East about the close of the Early Minoan Age, of which we have thus documentary evidence, may be said to usher in the Age of Palaces in the Island of Crete. Hitherto, as has been shown in preceding Sections, the main influence under which the insular culture had evolved itself had unquestionably come from the Nile Valley, and, though this influence included many elements of remote Chaldaean origin, they had arrived indirectly and in a somewhat disguised shape.

But the evidence before us also leads to the conclusion that the direct communications with the Easternmost Mediterranean coasts, now opened out, were accompanied by intensive relations with the Southern littoral of Asia Minor. This in itself was to a certain extent a renewal of the old cultural attachment to the Mainland on the East with which, as shown above, the prehistory of the Island begins, in conformity with its geological traditions.[1]

[1] See above, pp. 4, 5.

Suggestions of Anatolian Relations.

Some contact, direct or indirect, may also at this time be inferred with the Hittite dominions. An instance, indeed, of such relations is supplied by the class of 'signet' seals that makes its appearance at this epoch and the specimens of which have been mostly found in Eastern Crete.[1] These are themselves of native fabric and are generally engraved with sign-groups of the indigenous hieroglyphic class. Their form, however, which suggests a prototype in metal, presents a decided analogy to a Hittite class,[2] and some of them are of silver—an unique case among Minoan seals but of common occurrence in the Hittite series. Of great significance, moreover, in regard to the opening out of these new Anatolian relations is the portrait head—illustrations of which have been given in the first volume of this work[3]—repeated in clay seal-impressions from the Hieroglyphic Deposit at Knossos, of a personage in whom we may with great probability recognize a Priest-King, presenting a typically proto-Armenoid physiognomy.

May there have been at this time some actual racial intrusion into Crete from Southern Anatolia bringing with it, perhaps, a dynastic change and a new political system?

First appearance of Cretan Palaces.

Early example at Mallia E. of Knossos.

It is symptomatic of the new order of things that it is at this time that the Cretan Palaces first rise into view. The earliest palatial remains at Knossos are seen to belong to the initial phase of the First Middle Minoan Period (M. M. I *a*) and the excavation, already far advanced, of the more recently discovered Palace at Mallia has brought out the well-preserved remains of a contemporary building of this class substantially in the form in which it was originally planned. The Palace of Mallia, indeed, like that of Phaestos in other directions, completes the tale of Knossos in some important particulars. It supplies for the first time a clear picture of an earlier palatial phase, elsewhere almost totally obscured. Not only does it carry us back farther, but it gives us a glimpse into the inner life of the scions of the royal and at the same time sacerdotal race, who were the founders of the first palaces of which we have the record. Their actual apartments, the *loggia* where they performed their ceremonial functions, and even the insignia marking the lay and spiritual side of their dignity are now before us.

The date of the Palace is itself well ascertained. The vases and

[1] There are in my own collection five specimens from the Easternmost district of the island.

[2] Compare the handled seal type with perforated knob (D. G. Hogarth, *Hittite Seals*, p. 21, Fig. 18). Seals of this class occur in haematite and metal.

[3] P. 8, and Fig. 2, *a*, *b*, and p. 276, Fig. 206.

fragments found here on the old floor of the building in fact exclusively belonged to the earlier phase (*a*) of the First Middle Minoan Period and were therefore coeval with what have been called above the 'proto-palatial' elements at Knossos. Where, moreover, as in the Magazines East of the Central Court, later floor levels occur, the superposed pottery belonged to the closing Middle Minoan phase representing, *per saltum*, a date quite four centuries later. The hieroglyphic tablets, of which a deposit came to light in the North-West Quarter, must also represent this early epoch and tend to show that those from the analogous deposit at Knossos that exhibit similar forms and characters [1] must be referred to the same cultural phase.

M. M. I *a* date of Mallia Palace.

The four-square outline of the Palace round a Central Court and its main details such as its pillar-room and magazines represent features which other Cretan Palaces preserved to the last. We see, in fact, the more or less simultaneous introduction into the Island at various points of an already stereotyped model.

That this model was derived from an Eastern source is a reasonable conclusion, but it cannot be said that it has any close resemblance to such early palace plans as we see at Lagash (Tello) or other Mesopotamian sites. On the Anatolian side, on the other hand, we meet with some real architectural parallels, notably in the form of the *propylon*, well illustrated by the earlier and later examples of which fresh evidence is now forthcoming at Knossos.[2] The section of the Court of the much later Palace at Sendjirli (Fig. 159),[3] with its raised two-columned *exedra* on one side, and a columnar portico at one end, shows an obvious analogy with the *loggia* West of the Central Court of Mallia (Fig. 160), and the porticoes or verandahs on its North and East flanks (Suppl. Pl. XVII).[4] A feature common to all the Cretan Palaces, but of which no explanation has been hitherto forthcoming, acquires great significance. This is the bays and projections at regular intervals in the outer walls, already so well known in a shallower form at Knossos and

Anatolian features.

[1] *P. of M.*, i, p. 196, Fig. 144; p. 278, Fig. 209. The Mallia tablets are mostly clay 'labels' similar in type to the earlier class of those at Knossos. Perforated bars, square and triangular, were also found as well as flatter rectangular specimens. Except for one or two new signs, the script itself was the same and some identical sign-groups occurred. The tablets refer to various properties, the numbers being sometimes given. Among the subjects were ships, the heads of oxen and goats, skins of animals, leafy sprays, perhaps of olive, as well as the double axe and 'palace' sign. The heads or upper parts of human figures also appear, as on the Knossian series.

[2] See below, Fig. 495, p. 693.

[3] From *Ausgrabungen von Sendschirli*, ii, Tafel xxvi–xxvii.

[4] The photographs from which Fig. 160 and Suppl. Pl. xvii are taken were due to the kindness of Monsieur Fernand Chapouthier of the French School at Athens.

Analogies with Sendjirli.

Phaestos, and which reappear in the early Palace of Mallia. The recurrence of these shallow bays and projections, which themselves fulfil no functional end, is simply explained if we regard them as the survival of square projecting towers on the outer walls and originally designed for defence. At Troy, Sendjirli, and elsewhere on the exposed Mainland, these towers are still preserved along the wall-lines.[1] But on the insular sites, in buildings designed

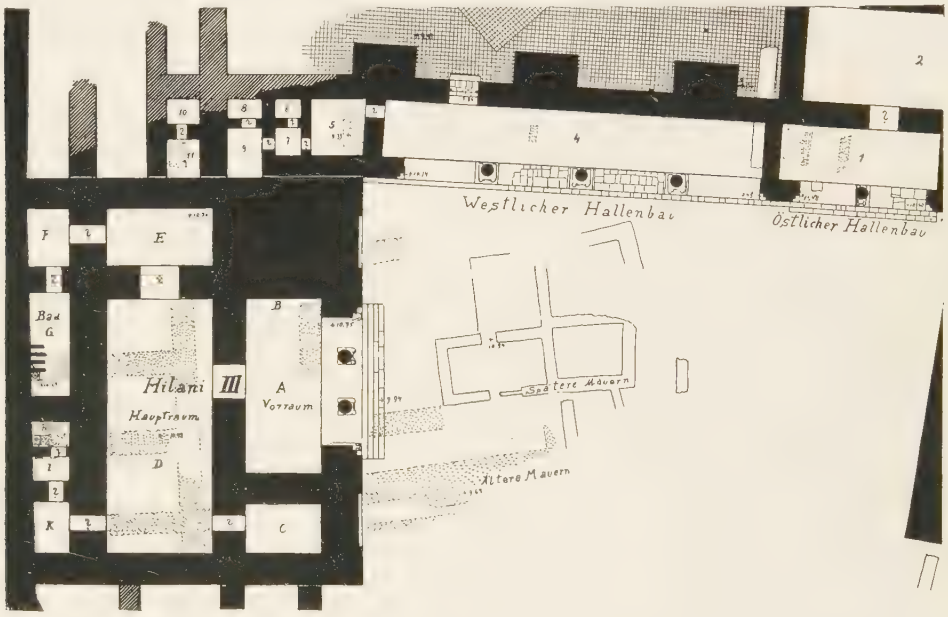


Fig. 159. Part of the Plan of Central Court of Hittite Palace at Sendjirli with Loggia and Columnar Portico resembling that at Mallia.

for show rather than security, and guarded by the *Pax Minoica*, only a reminiscence of these original defensive structures was preserved.

Insignia of Priest-King found at Mallia.

In view of these derivative palatial features and the closely knit relations with the Anatolian side that characterize this epoch, a special interest attaches to some new evidence that is forthcoming at Mallia as to the actual character and insignia of its ruler and, indeed, its probable founder.

On the West side of the Palace—which was mainly one-storied—there seem to have been residential rooms, with one or more windows giving on to an open inner corridor, analogous in position to the Long Corridor at Knossos. From these a passage led to the *loggia* already mentioned, overlooking the Central Court, an altar-base on which seems to betoken that ritual functions

[1] In the case of the Early Helladic Castle at Aegina we see this feature transferred to Mainland Greece in its earlier purely defensive shape.

were here performed before the people assembled in the Court below. From the inner apartments this platform was approached by a flight of four steps, the topmost of these being set between two column

Royal Apartments and Loggia.

FIG. 160. RAISED LOGGIA ABOVE COURT OF MALLIA PALACE FOR CEREMONIAL FUNCTIONS, SEEN FROM THE PRIVATE APARTMENTS.

bases (see Fig. 160). In an alcove immediately North of the steps, in company with a typical M. M. I *a* painted jar,[1] were brought to light three bronze weapons,[2] a bronze dagger and sword, and a single-bladed axe of brown schist, and from the remarkable character of these there is every

Find of Ceremonial Arms.

[1] In the note on this in the *Comptes rendus* of the Académie des Inscriptions cited below, the jar is described as 'M. M. III', a fundamental error, apparently due to a certain resemblance to the 'lily vases' of that date. M. Chapouthier rightly regards it as M. M. I *a*.

[2] A brief account of the discovery of these weapons, made in 1924 by MM. J. Char-

reason to regard them as having been the personal property of the Lord of the Palace.

The dagger (Fig. 161) had a blade with a broad, flat median stem and its hilt was covered with thin gold plate engraved with 'herring-bone'

Fig. 161. Gold-plated Bronze Dagger from Mallia Palace.

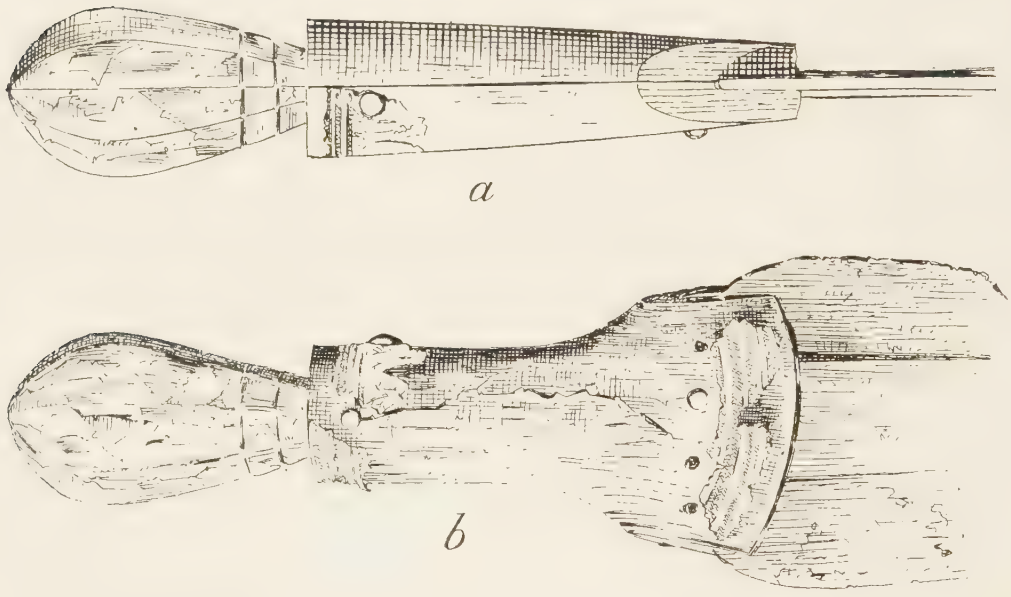


Fig. 162. Hilt of Royal Sword from Mallia Palace with Gold Plating and Crystal Knob. ($1\frac{1}{2}$)

ornament. The sword (Fig. 163), to which we may return in considering Minoan arms, is the natural expansion of the broad-stemmed dagger-blade with which it was associated, and similar thin gold plate with the same engraved 'herring-bone' pattern decorated its hilt. The dagger-blade itself answers generally to a Cretan form belonging to the close of E. M. III or

bonneux and F. Chapouthier, appeared in the *Comptes rendus* of the Académie des Inscriptions, i, 1925, pp. 23, 24, with a figure of the axe. See notes, *Bull. de Corr. Hell.*, xlviii, 1924, p. 496, and full publication *Mon. Piot*, 1926, p. 1 seqq., Pls. I, II.

FIG. 163. ROYAL SWORD FROM MALLIA PALACE.

the beginning of M. M. I,[1] and we must regard both sword and dagger as of indigenous handiwork. The sword, as in the case of all early weapons of the class, is of the rapier or thrusting kind, in conformity with its origin from the dagger type. But what extraordinary development in its length has here taken place! Only those who have made some special study of the gradual evolution of this weapon can fully appreciate the fact that we have here in Crete, by the close of the Third Millennium before our era, a sword which, with its pommel, was almost a metre long—exceeding by a good fifth the longest Bronze Age swords known in Europe,[2] all of which it long precedes in date.[3] Its hilt (Fig. 162, *a*, *b*) is 21 cm. ($8\frac{1}{2}$ inches) long, of gold plated ivory, terminating in a facetted knob of rock-crystal, with here and there a glint of amethyst. This magnificent weapon is indeed a Minoan 'Durendal'—the craft of Daedalos here forestalling that of Weland.

Long Sword of State.

The dagger type (Fig. 161) on which this sword is based is unquestionably of indigenous origin. It is possible, however, that the lengthening of this owed its suggestion to prototypes on the Anatolian side, since although there is no trace of any earlier Minoan weapon of this type, copper swords of simple shape with hooked tangs have been found in Cypriote tombs belonging to the immediately preceding period.

Ritual Axe with Forepart of Leopard.

[1] Compare, for example, one from Platanos (Xanthudides, *Vaulted Tombs of Mesarà*, Pl. LV, no. 1885). The flat stem is in this case somewhat irregular.

[2] Among the longest may be mentioned two from the Mycenae Shaft Graves, the length of which is about 72 cm. (J. Naue, *Vorrömische Schwerter, Atlas*, Pl. III, 3, 4). A Sicilian example of Minoan derivation (*op. cit.*, Pl. IV, 7) was, when complete, about 80 cm. long. One from Schleswig (*op. cit.*, Pl. X, 3) was about the same length. But these are exceptional cases. The great bronze sword from Beth Dagin, near Gaza, acquired by the British Museum in 1910 and supposed to be Philistine work of about 1200 B. C.—some nine centuries later than the Mallia specimen—attains indeed a length of 42 inches (107 cm.). It has been compared with the great swords of the Shardana on Egyptian monuments.

[3] A form of copper sword was already known in Cyprus at a somewhat earlier date. Specimens with the usual hooked tang are known from the Copper Age cemeteries of Psemmatismeno and Lamberti, near Tamassos, respectively, 60 cm. and 63·8 long (see Naue, *op. cit.*, p. 4 and Pl. II).

The schist axe found with the sword and dagger clearly betrays Oriental affinities. Its butt, Fig. 164, is carved in the shape of a spotted pard[1] in the act of springing, while the collar or leash points to a beast made use of for hunting. The axe-blade and the forepart of the animal are covered with the linked spiral pattern, in the simple form that was already diffused in Crete and the Aegaean by the closing E. M. III phase, and the zigzagging decoration that supplements this represents a larger version of that which is microscopically engraved on the gold plates of the sword and dagger, a further indication of native fabric.

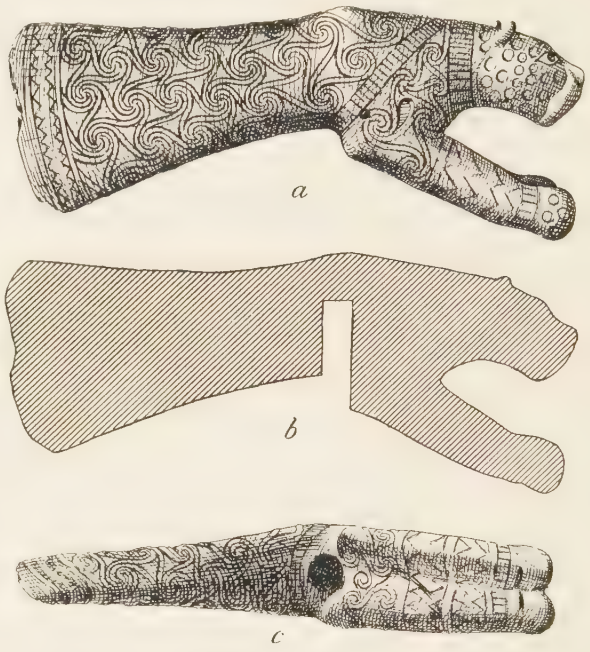


Fig. 164. Ceremonial Axe-head of Schist terminating in Forepart of Leopard. Palace of Mallia.

The weapon is only partially bored, the hole being only about 8 millimetres in diameter, and it is evident that to support the weight it must have been provided with a rod of metal. Such a rod is often still seen in the case of ceremonial axes—doubtless of very ancient tradition—carried by Dervishes of Asia Minor.[2]

Oriental Affinities of Zoomorphic Axe-head.

The general configuration of the axe in this case certainly points to some model supplied from that direction. The leopard itself could hardly be found much nearer than the Syrian borders, and the zoomorphic butt recalls ritual axes of Oriental tradition, notably the highly artistic Persian example from Ecbatana in the British Museum (Fig. 165, *c*),[3] displaying a lion's body in relief on its sides, the head of which turns up at its butt. Parallel types to this have been found in Bactria and at Van in Armenia, and in the same way we see lions arranged in symmetrical pairs on the sheaths of Assyrian swords such as that shown on a relief of Sargon.[4]

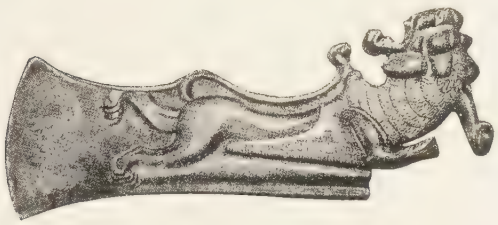
[1] Described, *loc. cit.*, as a 'lionne', but the spots on the head are surely those of a leopard.

[2] I once possessed one of these with an iron rod supporting a small brass axe, the posterior end of which had a curving beak.

[3] *B. M. Guide; Bronze Age*, p. 128, Fig. 124.

[4] Perrot et Chipiez, *Hist. de l'Art, &c.*, p. 577, Fig. 272.

In the well-known Hittite rock carving of the sanctuary of Jasili Kaïa at Boghaz Keui [1] (Fig. 165, *b*), we see the relief of a huge sword or dagger-blade as if stuck into the ground, the hilt of which is composed of two crouching lions on either side of a boss.[2] The religious significance of



c, Persian Bronze Axe, Ecbatana.

a, Early Sumerian Dagger-hilt, Lagash.

b, Hittite Rock Carving of Jasili Kaïa.

Fig. 165. Oriental Comparisons suggested by the Leopard Axe of Mallia.

this is enhanced by the appearance, immediately superposed on it, of the conjoined forequarters of two more lions, with a human head above, surmounted by a pointed tiara, with which we may compare the divine personage holding a double axe who stands on the back of a pacing lion or pard in a neighbouring relief.[3] We may here, indeed, interpret the sacred weapon —which, like the double axe, could become the baetylic seat of a divinity— as assimilated to the divinity itself, conjoined with his guardian beasts. A close approximation, indeed, to the same idea is to be seen at a later date

[1] Georges Perrot, *Hist. de l'Art, &c.*, vol. v, p. 596 seqq.

[2] *Op. cit.*, Fig. 320, opp. p. 646.

[3] *Op. cit.*, Pl. VIII, 3.

on the coin-types of Tenedos, where the sacred double axe is equated on the obverse with a janiform head, probably identified by the Greeks with Dionysos and Ariadne,[1] but which goes back to a dual cult widely diffused throughout Asia Minor from the earliest times of which we have any record. It is in fact indissolubly connected with the worship of the *labrys*.

Sumerian Prototypes.

The Hittite zoomorphic figures as illustrated among the same reliefs by the adoption of the double-headed eagle of Lagash stand in close relation to old Sumerian models, and the hilt composed of crouching lions comes from the same source. A good example of this is supplied by a copper dagger or short sword from Lagash,[2] the hilt of which is composed of two crouched lions with their heads outwards (Fig. 165, *a*), in much the same attitude as those of Jasili Kaïa, but dating from the Age of Ur-Nina, *c.* 3000 B. C. An inscription that it bears informs us that it was the weapon of a priest dedicated to the God Ningirsu.

Mallia weapons illustrate dual aspect of Priest-Kings.

The carved axe of the Mallia find, with these sacral associations, was, as its conformation shows, of a ceremonial character. Its discovery, together with the truly royal sword, warrants the conclusion that we have here in fact the insignia of a personage who filled a sacerdotal as well as a princely office.[3] The building itself, as is shown amongst other features by its similar pillar crypt, with the double axe repeated on one of the pillars, was, like Knossos, a Sanctuary as well as a Palace. It may even be suspected, especially in view of the discovery of minute fragments of bone in the same alcove with the arms, that the whole formed part of an interment and that the royal builder, like Diocletian and Philip II on a grander scale, had designed a space within for his own sepulchre.

Evidences of theocratic functions.

The indication that the ruler of this early Palace was invested with both spiritual and temporal functions confirms the conclusion already stated by anticipation as to the similar dual character of the lords of Knossos.[4] The great Palace there, besides its pillar crypt and lustral basins, contained a whole series of shrines and sacristies, and the presiding Goddess was glorified by frescoes and reliefs on the walls, recording the tributes of her votaries and the sports held in her honour. A most striking instance, moreover, of the theocratic position of the ruler is supplied by a small chamber for Councils or Consistories where the throne faces one of the sunken basins,

[1] Head, *Historia Numorum*.

[2] *Découvertes en Chaldée*, Pl. VI, *ter*: described by M. Léon Heuzey, vol. i, p. 386 seqq. The total length of the weapon with the hilt was 41·5 cm., the hilt itself 15 cm. Unfortunately the case containing this and other priceless objects had to be sent to the Museum at Constantinople and was plundered on its way.

[3] I called attention to this important aspect of the discovery in *The Times*, Dec. 24, 1925.

[4] *P. of M.*, i, pp. 4, 5, and Fig. 1.

the ritual character of which seems to be well established. This conjunction, moreover, as has been already pointed out, finds a suggestive analogy in the 'Hall of Initiation' of Mên Askaënos and a Mother Goddess at Antioch in Pisidia, later indeed in time, but representing a very ancient cult.

Once more, as at Mallia, we are brought into an Anatolian and, indirectly, into a wider Eastern relation. At both places he who wielded temporal power was also 'a priest for ever after the order of Melchizedek'.[1]

Anatolian and Syrian Range of Minoan Cult of Mother and Child.

The constant intrusion of religious elements into the affairs of ordinary life, of which we have such abundant evidence at Knossos, is a marked feature of the Minoan Religion. At the same time we do not encounter any such multiplicity of divinities as in the Classical World, and in fact are constantly brought back to the same Great Mother with her Child or Consort whose worship under various names and titles extended over a large part of Asia Minor and the Syrian regions beyond. The Goddess, indeed, is seen with doves perched on her head in a celestial relation, or with serpents twined round her as Lady of the Underworld and averter, we may believe, of the constantly recurring scourge of earthquakes. As Mother Goddess we see her with her hands on her matronly breasts, but with the same tiara, and the same apparel even to the patterns on her dress.[2] As the source of all vegetation, she holds corn and poppy-capsules and lilies, and rises from the ground like Demeter in later myth. With bow and arrow she hunts the roe like Artemis, or, wielding her symbolic double axe, takes on an Amazonian aspect. At times she holds an anchor as Mistress of the Sea. But throughout these changing impersonations we still feel ourselves in the presence of essentially the same divinity rather than with separate mythological entities, like those of later Greece. The process of differentiation, begun, no doubt, is incomplete. She is constantly associated, moreover, with distinctive symbols like the Double Axe, which, together with other special emblems of the cult, is of constant recurrence in her changing impersonations. The medieval worship of the Madonna with varying attributes and emblems, in conformity with local cults, supplies a good analogy.

Emotional element in Minoan religion.

The Religion itself is of an unitary type, revolving round a central theme and, being itself the outcome of what seems to have been largely a matriarchal society, its motherly appeal gave it an emotional hold on its adherents, anticipating that of a good deal of the Christian Church at the present day.

More than this: there was a real underlying affinity between some

[1] See *loc. cit.*, and Miss M. M. Hardie (Mrs. Hasluck), Mr. W. M. Calder, and Sir W. M. Ramsay, *J. H. S.*, 1912, p. 111 seqq. and *B. S. A.*, xviii, p. 37 seqq.

[2] See above p. 236, Fig. 133

Root affinities with Christian ideas.

central features of the Minoan religion and those with which Christendom is familiar. The parallelism already noted between the old Cretan and Anatolian cults did not cease at the Syrian or even the Palestinian borders, and certain elements may well have been the common property of a very early ethnic element that once occupied the whole of this East Mediterranean angle.[1] It was no doubt due to the later Classical influences that the Minoan Child-God rose to greater importance than his Mother as the 'Cretan Zeus', though the earlier aspect of the belief was kept up by his birth legend—the hiding away in a cave and the suckling by the she goat, or, according to a variant version, by a cow,[2] suggestive of the cradling in the manger. The idea of the 'mortal God', so strange to Kallimachos that it excited his outburst against 'Cretan liars',[3] was quite natural to the adherents of the new faith. Thus, as we have seen,[4] the sanctity of the peak on which tradition placed the sepulchre of the Cretan Zeus and of other heights above his legendary birth caves—of which there seem to have been more than one—has been maintained to this day by pilgrim Churches dedicated to 'Christ the Lord'—*'Ανθεντὴς Χριστός*.

Mourning Rites over Grave of Mortal God.

Christian religious sentiment, moreover, is recalled by the mourning rites that seem to have been performed by Minoan female votaries over the grave of the young and mortal God, much as the Syrian women bewailed Adonis dead. An actual illustration of this from a scene on a Late Minoan ring from Mycenae has been already given,[5] in which an attendant of the Goddess bends down in the attitude of profound grief over the little grave-stone with the miniature shield hung beside it. New light on the World Beyond of the Minoan religion has now been thrown by the remarkable series of groups on the 'Ring of Nestor',[6] where chrysalises and butterflies are seen above the Goddess, symbolizing her power of giving life after death, while a young couple, resurgent through her means, are admitted by an initiating function into the 'Elysian Fields'. But perhaps the strongest evidence of the idea

Idea of After-life symbolized by Butterflies and Chrysalises on 'Ring of Nestor'.

[1] It is worth recalling that if there was a Jordan in Canaan, there was a Jardanos in Western Crete.

[2] This variant version is illustrated by a unique stater of Praesos (*Numismatic Chronicle*, 1896, Pl. II, 10, p. 18: Hermann Weber Coll.). A barbarous imitation of this piece with the cow turned to the left is given by Svoronos, *Numismatique de la Crète ancienne*, Pl. XXVII, 2 (Paris). The great interest of these coins has been missed by their describers.

[3] Hymn I, vv, 8, 9. See *P. of M.*, i, p. 153, and note 5.

[4] *P. of M.*, i, p. 153 seqq.

[5] *Ib.*, i, pp. 161, 162, and Fig. 116, and see my *Mycenaean Tree and Pillar Cult*, pp. 79, 80 (Quaritch, 1900, and *J. H. S.*, xxi).

[6] See A. E., *The 'Ring of Nestor', A Glimpse into the Minoan After-World, &c.*, p. 52 seqq. (Macmillans, 1925, and *J. H. S.*, xlv).

of her abiding presence is supplied by the tomb at Knossos,[1] marked by her columnar form, where not only had a niche within the vault at the head of the sepulchre been fitted up as a shrine of the guardian divinity with her double axes and ritual vessels, but the outline of the rock-cut grave itself was elaborately hewn in the shape of the sacred weapon (Fig. 169, *a*, *b*, at end of Section). Religious symbolism, surely, was never carried farther in Christian hands.

'Tomb of Double Axes' at Knossos: also a Shrine.

Little chapels existed in the private houses as well as the Palace Sanctuaries, and at times there is evidence in these, too, of small lustral areas for purificatory rites. A religion, indeed, so pervasive and that looked beyond the grave almost inevitably entailed a certain moral code. The weighing of the soul in its butterfly form, of which we have evidence, itself points to a standard that had, surely, its ethical side. It is at any rate a significant circumstance that, from the beginning to the end of Minoan Art, among all its manifold relics,—from its earliest to its latest phase,—not one single example has been brought to light of any subject of an indecorous nature[2]—a striking contrast, indeed, to the artistic records of Classical times. The *postscenia vitae* were at any rate sedulously concealed.

Suggestions of moral side to Minoan religion.

Consistent decorum of Minoan Art.

Like the kindred cults of Asia Minor, the Minoan religion had, indeed, its orgiastic side, such as we see, for instance, in the harvest rout that follows the sistrum player on the Hagia Triada 'rhyton'.[3] Dancers, too, are seen with the afflatus of the divine spirit upon them. Is it possible, as in the case of the somewhat analogous Thracian sectaries, that the enthusiasm of which we have evidence may have been at times directed to extend its sway beyond its original borders? Such an aim is thoroughly in keeping with its Oriental character and would have been carried out doubtless in a methodical manner, such as accorded with the more sober Minoan spirit.

Was there a Propagandist Element?

The question, indeed, is actually suggested by some curious discoveries made at Niru Khani, the Minoan maritime station already mentioned,[4] on the coast road from Mallia to the port of Knossos. From the sickle-shaped reef and adjacent islet with its submerged quarries[5] and the columnar Minoan building awash on the sea margin, the traces of habitation extend Eastwards along the borders of a beach of sand and pebbles for about a kilometre, broken only by the boulder-strewn mouth of the Vathianòs

Presumptions supplied by Building at Niru Khani.

[1] A. E., *The Tomb of the Double Axes, &c.* (Quaritch, 1914, and *Archaeologia*, vol. lxv).

[2] Even phallic amulets, common among early Cycladic relics, seem to be unknown in Crete.

[3] See above, p. 47, Fig. 22.

[4] See above, p. 232.

[5] The floor of the section of the quarry nearest the shore is 1½ metres beneath the sea surface. This basin shows a central partition sawed out.

stream, now little more than an intermittent torrent. Beyond this is another reef of conglomerate rock jutting out West, with the circular borings, again, of ancient quarries, and above this the hill of Pyrgos where is the natural vault used as an Early Minoan ossuary [1] and remains of a contemporary settlement. It looks, indeed, as if its inhabitants, like the original inhabitants of Komò, had preferred in the Middle and Late Minoan Age to descend to a station nearer the sea.

Remains of Port.

Just beyond the right bank of the river-mouth parts of a massive structure of great blocks are preserved, seemingly the head of a Minoan mole (Fig. 166), traces of which, indeed, are visible under water running out to sea.

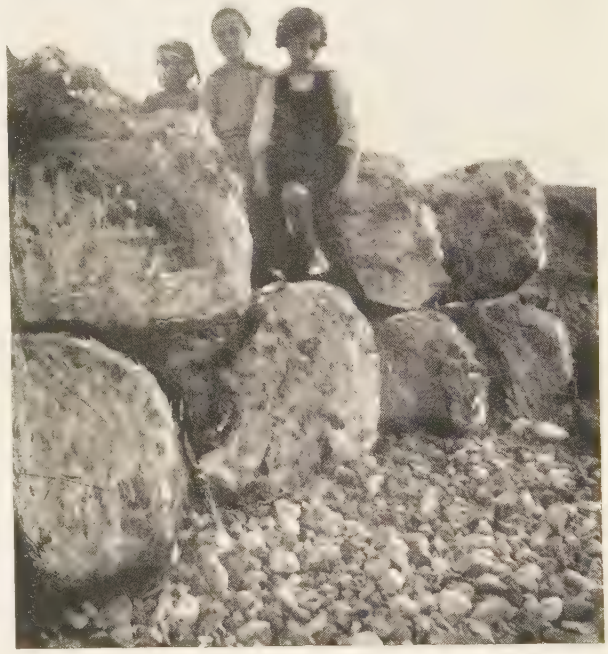


Fig. 166. Abutment of Minoan Mole, Niru Khani.

These remains, if rightly interpreted, are of the highest importance since here we seem to have traces of a harbour divided by a mole and, perhaps we may infer, protected by a breakwater besides. The port of Niru Khani was itself only about seven miles distant from the site of Knossos, and as access to it by road, at first by the sea-coast and then across country,[2] could not have presented difficulties to Minoan engineering, it is

[1] See *P. of M.*, i, p. 59 and Fig. 19. For the results of its exploration by Dr. S. Xanthudides see Ἀρχ. Δελτ., 1918, p. 136 seqq.

[2] Like the course of the later roads, medieval and modern, the Minoan coast road would probably have skirted the rocky headland of Kakon Oros, thence pursuing its way across the rich level country that lies about the lower course of the ancient Karteros, past the site of Mation, and so by the natural pass, lined with late Greek and Roman rock-tombs and once doubtless followed by the Roman road. From this point it would join the Kairatos valley and reach Knossos somewhere near the spot where the piers of a Roman bridge are still preserved, by the N.E. extremity of the Minoan town.

possible that it may have partly served as a supplementary maritime outlet for the great Minoan city.

Near the abutment of the mole, along what must have been part of the harbour front, are remains of Minoan houses the earlier elements of which go back to the Middle Minoan Age, and a little landwards of the mole-head the researches of Dr. Xanthudides, who has done so much to explore this site, brought to light a building[1] which, as its contents show, was of quite an exceptional character. Exceptional Building.

Its plan, as given in Fig. 167,[2] will give a general idea of the main part of this building as excavated, though the open portico of the 'Megaron' suggests that the Court as completed was approached through an entrance on one of its further sides, under proper guardianship.

On the South side of this paved Court a peculiar feature is visible in the shape of a stepped projection, beside which remains of a large pair of sacral horns were found, clearly showing that it was designed for public religious functions. It seems, therefore, to correspond with the raised dais described above, overlooking the Central Court of the Mallia Palace. South of the main part of the building ran a narrow paved yard, windows looking out on which are visible in Corridor 8 and the small adjoining Chamber 9. Immediately North of the block, again, is an open area bordering corn-bins[3] and magazines with remains of store jars.

From the 'Megaron' a passage led to a little sitting-room (12) provided with a corner bench, lit in front by a light-well (13) and opening behind into a small dark chamber, which, as the stone lamps found within it showed, was lit by artificial light. To the left the Megaron gave access, past a dark lamp-lit recess, to the stairs leading to the upper story that covered this whole block, including the entrance hall, and which, from the fallen materials, is seen to have consisted of crude brick and woodwork.[4]

But the great interest of the building lay in the contents of two of its chambers. In space 7, approached from room 5, which would have been lit by windows opening on the Court, were found four huge bronze axes of the ritual class of which the largest specimen has already been figured in the first volume of this work.[5] Its width was nearly a metre and a fifth in Huge Ritual Double Axes.

[1] See Xanthudides, Μινωικὸν μέγαρον Νίρου, Ἀρχ. Ἐφ., 1922, pp. 1–25.

[2] From that executed by the Greek architect, Kyrios Anastasios Orlandos, *op. cit.*, p. 3, with some supplementary indications.

[3] Beans and vetch seeds were found in connexion with these.

[4] Some of the partition walls of the lower story were also formed of crude brick. A good deal of the paving was of greenish blue slate slabs, much in vogue in Crete at the end of M. M. III and beginning of L. M. I.

[5] Pp. 436, 437, and Fig. 313.

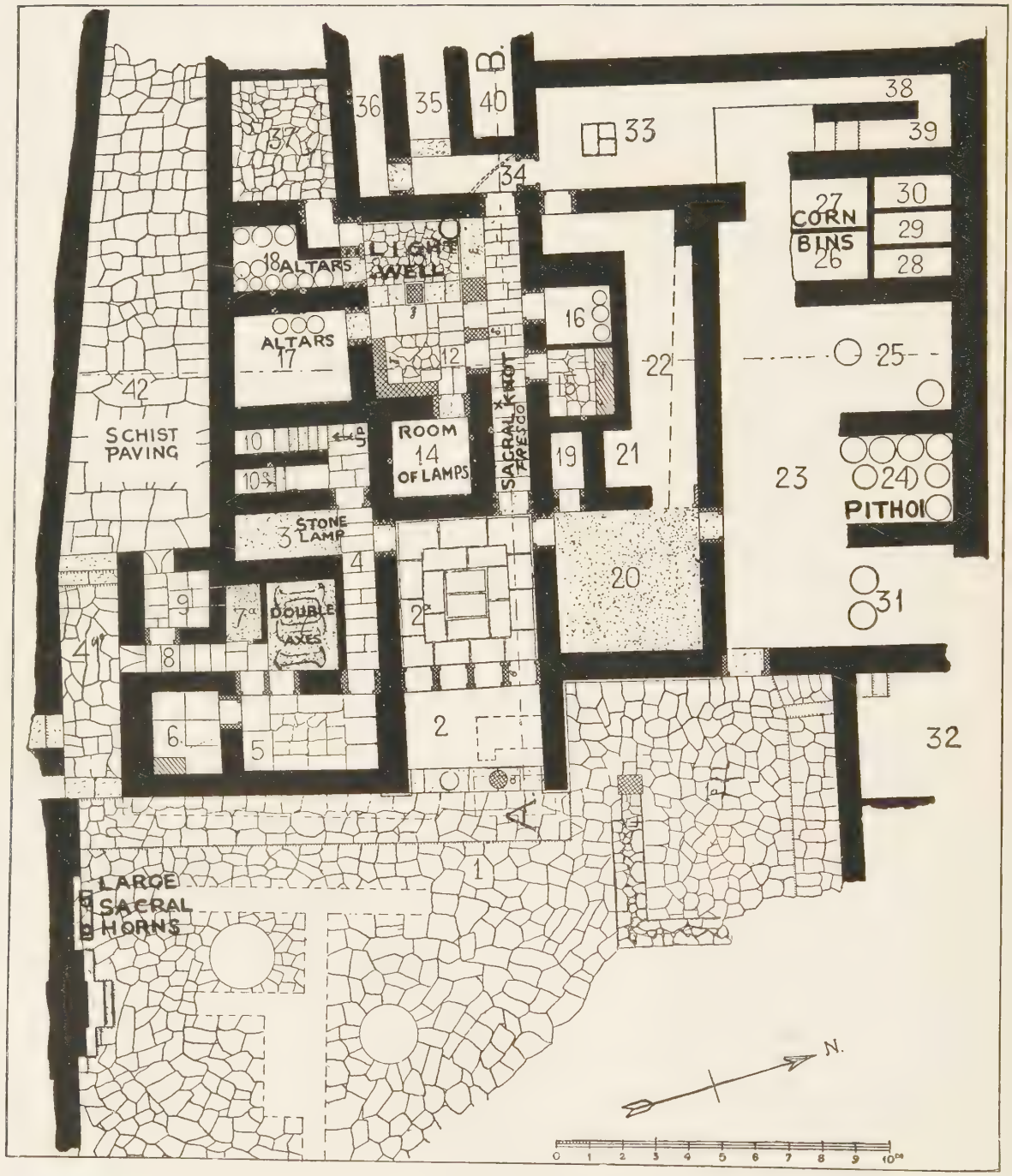


FIG. 167. PLAN OF BUILDING, NIRU KHANI, CONTAINING STORES OF CULT OBJECTS.

breadth, and none of the others was much under a metre.[1] These, as will be seen, were not destined for domestic rites, the largest of the ordinary liturgic and votive axes being not more than about 20 cm. in width. Even that found at Hagia Triada and connected there with a small palace was only of little more than half these dimensions. The liturgic weapons of the Minoan cult here deposited were for great sanctuaries and imply congregational use in open spaces.

Stacks of Tripod Altars.

The pendant to this discovery was supplied by the contents of the small room (18) which opens off a light area, and the borders of the adjoining room (17). Here, stacked in piles ranged close together against the walls, there came to light a large store of tripod hearths or altars of painted clay. Remains of between forty and fifty were here extracted and three more were found in a little room (16) on the opposite side which seems to have contained a supplementary store. These objects, decorated with red, black, and white bands, answer in form to the sacred tripods found in Minoan shrines,[2] such as that of the Shrine of the Double Axes at Knossos described below,[3] where it was placed before the ledge on which stood the sacral horns and emblems and the figure of the Goddess and her attendants. In the great 'Tomb of the Tripod Hearth' in the Zafer Papoura cemetery at Knossos, which, like the 'Tomb of the Double Axes'[4] was also, doubtless, in some sort a shrine, charcoal was found resting on a utensil of this kind which may have served to burn the resinous substance used for fumigation. In a room of the 'House of the Sacrificed Oxen', again, illustrated in a succeeding Section,[5] painted tripods of this kind belonging to the immediately preceding epoch were found beside the skulls of the victims. Such tripods seem also to have had a widespread domestic use, but their destination for cult purposes is no less certain, and it is to

[1] The exact dimensions as given by Dr. Xanthudides (*op. cit.*, p. 12) are for the largest axe, 1·175 m. (*c.* 3 ft. 10 in.); for the next about 1 metre, and two others 0·93 m. The ritual Double Axe from Hagia Triada was 0·62 m. in width. The blades of these axes as in other similar examples were formed of two thin plates of metal attached by rivets to the socket pieces. The vertical width of the largest axe was 24 cm. at the centre.

[2] Cf. also the similar position of a tripod altar (or 'table') in the shrine at Gournià (Boyd-Hawes, p. 47 and Pl. XI, above) belonging apparently to L. M. I *a*. A part of an image is placed on it in the Plate, but it was not found in this position. The images indeed, as in the Knossian shrine, seem to have rested on a low ledge or dais.

[3] See below, p. 337 and Fig. 189. This shrine in the form in which it was discovered belonged to the Reoccupation Period (L. M. III *b*).

[4] A. E., *Prehistoric Tombs of Knossos*, i, p. 34 seqq. and Pl. LXXXIX.

[5] See below, p. 301 and Fig. 175.

this class that those stored in the Niru building must in all probability be referred.

Sacral Knot painted on Wall.

It is now possible to add another evidence of the peculiarly religious destination of this house. In room 17 and the Central passage were found some pieces of painted stucco a group of which, as reconstituted, proves to form part of the design (Fig. 168), depicting the 'Sacral Knot',[1] already referred to as a recurring feature in Minoan religious iconography. It appears, indeed, as a distinctive appendage on the shoulders of the Goddess itself and her handmaidens. Such knots were executed in ivory and faïence,[2] and probably in other precious materials, besides woven stuff, and we may venture to believe that they were included among the ritual objects of which this building contained supplies.

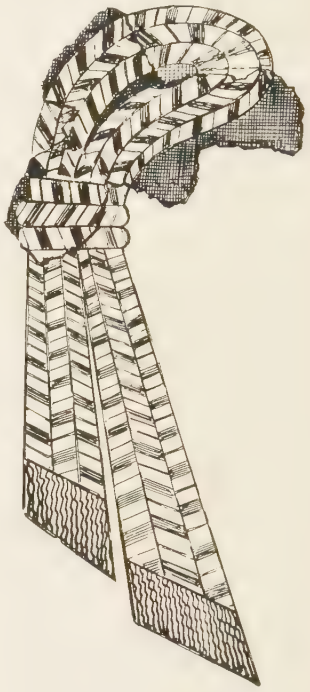


Fig. 168. Sacral Knot painted on Wall at Niru Khani. (Restored.)

It is impossible not to agree with Dr. Xanthudides' conclusion[3] that the house was occupied by some Archpriest of the Minoan Cult, who superintended the fabric on the spot of indispensable ritual objects such as those described, and directed their distribution. We see, moreover, from the extraordinary dimensions of the Sacred Double Axes that they were destined for expedition to very important places. As a centre for the distribution of such objects to sites in the interior of the Island, Niru Khani, backed by a succession of rugged hills, was certainly ill placed. But the very position of the building near the head of the mole that ran out from the adjoining wharf naturally marks it as a convenient warehouse for dispatch of such objects overseas. When we remember that the period when this building was in use corresponds with that of the great Minoan expansion in Mainland Greece,[4] it looks as if a methodical attempt had been made to provide for

Warehouse for distribution of cult objects.

Export for Overseas Propaganda.

[1] The meaning of the reconstituted fragments was not at first recognized by the excavator (see *op. cit.*, p. 11). Its real interpretation, however, became apparent to me, and, in accordance with this, the restored drawing was executed for me by Monsieur E. Gilliéron, fils. (See, too, my *Ring of Nestor*, &c., p 7.)

[2] See *P. of M.*, i, pp. 430 seqq. and Figs. 308, 309.

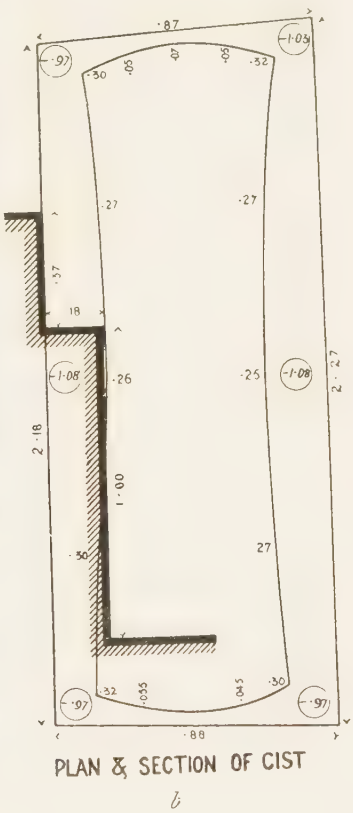
[3] *Op. cit.*, p. 16.

[4] The painted pottery found on or above the house floors was almost exclusively of L. M. I *a*

the spiritual needs of co-religionists in the new Mainland centres, and perhaps, in view of their surroundings, for some actual propaganda *in partibus infidelium*.

fabric (see *op. cit.*, p. 17 seqq., Figs. 14–16, 19, 20), though one cylindrical vessel occurred (p. 20, Fig. 17) with marine decoration of the L. M. I *b* style (see below, p. 509, Fig. 312). But, as Dr. Xanthudides rightly observes, some of the *pithoi* rather belonged to the latest M. M. III phase (*op. cit.*, p. 35). The building in fact, as so many private houses at Knossos, must be ascribed to the transitional epoch that precedes the beginning of the true Late Minoan phase.

a



b

FIG. 169. *a*, ROCK-HEWN GRAVE CIST IN TOMB OF THE DOUBLE AXES, ISOPATA, KNOSSOS, CUT OUT IN SHAPE OF DOUBLE AXE; *b*, PLAN AND SECTION.

§ 45. Evidences of Earthquake Shock at Knossos: S.E. Angle of Palace and Overwhelmed Houses.

Résumé of formative influences at Knossos—wide early relations, resulting in many-sided culture; Culmination of Civilization in Middle Minoan Age; Great Catastrophe about end of M. M. II; Restored splendour checked by another great overthrow in M. M. III b; *Physical character of this; Earthing under of earlier Store-Rooms, &c.—a vast Interment; General indications of a great Earthquake; Specific evidences of seismic action at S.E. Angle; Its subsidence due to artificial cavity below; Its Exploration—rock-hewn pillars and deep Cove; Early Mine for Red Earth; Investigation of submerged houses bordering S.E. Angle; 'House of Fallen Blocks'—Effects of Earthquake; M. M. III contents; Basements reached by ladders—a 'Tower House'; Typical Section of M. M. III Town; M. M. II houses below, with fine egg-shell pottery; 'House of the Sacrificed Oxen'; Heads of Urus Bulls and Tripod Altars; Expiatory sacrifice, before ceremonial filling in; Rich deposit of M. M. III domestic pottery; Suspension pots—perhaps for nesting swallows; Egg-stands; 'Ariadne's Clew-box'; Parts of painted stucco relief of bull; Terra-cotta relief of youth of 'Cup-bearer' type; Earthquake coincides with mature M. M. III* b *phase, but not its actual term. Shrinking of Palace boundaries.*

Résumé of formative influences at Knossos.

The foregoing Sections will have supplied a summary survey of the various agencies that influenced the growth of Knossos as a centre of Mediterranean civilization. Already, as we have seen, a populous settlement from remote Neolithic days, the Great South Road, or whatever more primitive transit route may have preceded it, had brought it into communication with the Nile Valley from Late Pre-dynastic times onwards. On the other hand, through its harbour town similiar relations were progressively opened up by the close of the Early Minoan Age and throughout the succeeding epoch with Italy and the Maltese Islands, and, thus, indirectly, with the Iberic and even the Britannic West. At the same time, by way of the coastal line East, a new direct impulse is now traceable from the Syrian side, bringing with it such tangible proofs of Oriental intercourse as cylinder seals of the First Babylonian dynasty and stone libation vessels in the shape of bull 'rhytons' of remote Sumerian ancestry. It has been shown, moreover, that the early Palace of Mallia, the plan of which gives the first intelligible idea of the 'proto-palatial' stage at Knossos, was itself largely taken from

Wide early relations.

pre-existing models supplied by the Western and Southern coastlands of Asia Minor. Like Knossos, too, it displays a wide Anatolian range in the symbols of its religion, for the propagandist spirit of which—so curiously suggested by the remains at Niru Khani—we should indeed most naturally seek comparisons on the Syrian side.

Resulting in many-sided culture.

It was doubtless the variety of the sources from which it drew that gave such a many-sided aspect to the civilization that marks the first Age of Palaces in Crete and the Middle phase of Minoan culture. Though always open to the reception of exotic influences, this 'Mid-Sea land', as has been already remarked, never suffered from the imposition of foreign forms at the hands of powerful neighbours as was the case with Syria and, later, with Phoenicia. There arose, on the contrary, in this Mediterranean area an independent organization of life and an original development of arts and crafts which, in its highest achievement, produced results never equalled for their combined freedom and beauty either by Egypt or Babylonia.

Great catastrophe about end of M.M. II. Restored splendour checked by another overthrow in M.M. III *b*.

About the end of the Second Middle Minoan Period a great destruction had befallen both Knossos and Phaestos. But this set-back had been followed during the succeeding Period—perhaps under a new dynasty—by a brilliant recovery, marked amongst other features by the fine reliefs of rosettes, triglyphs and spirals; representing a fully conventionalized architectonic style, by a new and improved system of writing—the Linear Script A—by the most finely delineated examples of fresco painting, to which, too, the 'Miniature' class belongs, and by glyptic works in various materials, in relief and in the round, more instinct with life and movement than anything that had as yet been produced by the Ancient World. This, too, was the great age of Minoan expansion overseas, which saw the beginning of the Conquest of Mainland Greece. Nowhere indeed have more brilliant relics of the artistic productions of Minoan civilization come to light than in the Shaft Graves of Mycenae, while the façades of the mighty beehive tombs, coupled with the names of Atreus and of Clytemnestra, have preserved the most complete examples of the decorative reliefs of Minoan architecture, of which at Knossos we have remains dating well back into M. M. III.

Its physical character.

This brilliant fabric of M. M. III civilization seems to have already had a severe set-back about the close of its earlier phase (*a*). It was, however, in its maturer stage that a blow fell at Knossos,—both on Town and Palace alike,—at least as overwhelming in its character as that which had preceded it at the close of the preceding Period, and in this case, certainly, dealt by the hand of Nature herself.

It is in the South-East corner of the Palace and its immediate borders

that some recent researches have brought out the clearest information as to the character of this catastrophe.

Earthing under of earlier Store-rooms,&c.

The vestiges of ruin that overspread the greater part of the Palace site of Knossos towards the close of M. M. III reveal an agency that was undoubtedly of a physical kind. Throughout the exposed area of the building there is evidence of a great overthrow, burying with it a long succession of deposits, often containing objects in an untouched state. On the upper terrace levels of the East Slope, North and South of the great Cutting, in a series of magazines and chambers whole stores of clay vessels, great and small, were brought to light, belonging to this stratum, standing on their floors, all belonging to the latest phase of the Third Middle Minoan Period, and earthed under as a consequence of the same catastrophe. Here were the North-East Magazines with pots methodically stacked in their various compartments, the 'Royal Magazines' with the series of 'Medallion pithoi',—broken indeed by later disturbances, but still preserving their original arrangement—the neighbouring groups of culinary vessels, and, to the South, the closet with the beautiful lily vases packed together in nests. To these may be added the 'false-mouthed' jars of the adjoining store-room, the elegant terra-cotta bath, as well as the sanctuary set including the ink-written cups.

Parallel contemporary phenomena presented themselves in the West Palace region, though in this case the restorers of the fabric cleared away most of the fallen materials to maintain the ground floors at the same level, instead of profiting by the accumulations to raise them nearer to the level of the Central Court, as they did in the case of the East terraces. Characteristic submergence of a pottery store of kitchen utensils of the same epoch, including a tall inscribed jar,[1] occurred in a basement space within the S.W. Palace Angle and a fine set of vessels with the typical M. M. III neck rings were found ranged on the floor of a small magazine beneath the neighbouring Southern Terrace. Elsewhere much of the debris was swept into 'Kaselles', afterwards paved over, while the great cists known as the Temple Repositories contained not only an abundance of contemporary clay vessels, many of them in a perfect state, but the exquisite reliefs and figurines in the native faïence.

A vast Interment.

What we have to deal with over a large part of the site is in fact a vast interment—an interment indeed from which what human remains it may have contained had been carefully removed. Its contents in truth were not in any sense funereal, but rather the everyday chattels of the living—their domestic

[1] *P. of M.*, i, p. 572, Fig. 416, *b*.

utensils and store-jars, and even the furniture of their shrines. Much labour and solicitude, indeed, had been afterwards expended in hunting out metal objects from the debris, but the contents of store-rooms and even artistic objects that did not possess an intrinsic value due to their material were not considered worth the trouble of excavation. These spaces were in many cases completely filled in, and the store vessels were left in position, so that a platform was formed for new constructions on a higher level.

Of what kind then was this devastating agency that at this epoch overwhelmed a large part of the Palace fabric, leaving these earlier relics in the store-rooms and cellars, earthed under by its debris?

Indications of Great Earthquake.

Already in a Section of this work dealing with the close of the last Middle Minoan Period at Knossos, which had reached the proof stage in 1915, I had drawn the almost unavoidable conclusion that, 'however much the results of the catastrophe may have been intensified by fire or subsequent pillage, the overthrow itself was primarily the result of an earthquake, such as that of Nero's time, which seems, from a curious record preserved by Dictys Cretensis, not only to have wrought great havoc in the later Knossos, but to have led to the first discovery on the site of documents in an unknown script'.

But the conclusion thus suggested by the cumulative results of earlier discoveries received decisive confirmation in the course of supplementary excavations of the site undertaken on an extensive scale in 1922.

Subsidence of S.E. Palace Angle.

Among the moot points that these fresh investigations were designed to clear up was the question as to what lay beneath the South-East angle of the Palace. The appearance of a curious depression marked by the progressive sinking of the great base-blocks of its Central and Southern walls, and the traces of a curving edge of the red 'kouskouras' rock that here crops up, had led to the conclusion that some kind of vault analogous to that brought out beneath the South Porch had existed at this point.[1]

Underground Vault beneath S.E. Palace Angle.

From the first, however, a very definite distinction was observable between the two cases. In the case of the South Porch the builders built with their eyes open. The upper part of the great hypogaeum that underlay this area had already been removed and the vault below packed with filling earth intermingled with M. M. I *a* pottery and apparently supplied by the levelling operations rendered necessary for the formation of the Central

[1] The existence of such had been even tentatively marked by a circular outline on the Diagrammatic Plan, vol. i, facing p. 203.

Court above. Although the superstructure of the Porch was doubtless exceptionally light, they had still therefore sunk the foundations about 11 feet (3·30 m.) beneath the base of the walls, the level position of which was thus maintained throughout the Palace history. But those who constructed the walls of the South-East corner of the building, which may indeed have had a much heavier superstructure, had no such materials for their guidance. Clearly, they were under the belief that they were building on a solid foundation of rock, while in reality it was a mere crust overlying a deep artificial vault. The builders therefore had no hesitation in laying the large limestone base-blocks of the walls practically on the rock surface.

Due to collapse of artificial cavity below.

These slabs in the case of the South wall are remarkable as presenting some of the largest incised signs anywhere discovered on the Palace site. That near the Western angle of the wall shows a combination of the double fork and trident signs, 80 cm. (31½ inches) in width and 42 cm. (16½ inches) in height, already illustrated for its abnormal dimensions (see vol. i, p. 131, Fig. 97). The slab on which it appears—long a landmark of this part of the site—was now found to be one of a series sloping rapidly downwards to the East to a depth of over two metres below their original level (see Plan, Fig. 172, below). Three of these blocks showed further large and deeply cut signs, two tridents and a star of six rays.[1] All are characteristic of the earliest Palace structures going well back into the First Middle Minoan Period.

Great signs on blocks of outer walls.

Besides the base-blocks described, there were other partially sunken and tumbled blocks, together with two column-bases, in an intermediate position, within this rectangular outwork of the Palace. These, as was made clear by subsequent investigation, belonged to the exterior line of a staircase that had here overlooked an elongated light area paved with the Minoan *tarazza* (see below, Fig. 185, p. 327).

Sunken remains of S.E. Staircase and Light Area.

The position of this bastion of the building, on a terrace edge running South and East, exceptionally exposed it to the effects of a violent shock, and, as we shall see, great blocks from its outer walls were hurled some distance onto an adjoining house. On the other hand, the excavation now undertaken showed that it overlay a subterranean vault, from the roof of which it was only separated by a somewhat narrow crust. Yet, in spite of these unfavourable conditions, obvious and concealed, that part of the fabric seems to have remained in being, so far as its general lines were concerned, for some four centuries. The base-blocks of the walls go back, as has been

Collapse dated by sherd near close of M.M.III.

[1] The star (compare Table, *P. of M.*, i, p. 135, Fig. 99, No. 24 *b*) was about 36 centimetres in diameter. One of the trident signs was 33 centimetres wide by 50 centimetres high.

shown, to the date of the foundation of the Palace.[1] The latest ceramic relics with which the remains were associated belong to a date approaching the close of the last Middle Minoan Period.

FIG. 170. OPENING OF COLLAPSED VAULT AT BEGINNING OF EXCAVATION AS SEEN ALONG THE SUNKEN COURSE OF CENTRAL WALL OF SOUTH-EAST ANGLE.

The evidence that the final collapse occurred at that epoch must be regarded as conclusive. Excavation of the central part of the area revealed the existence of an artificial vault, executed in the soft rock and underlying the Minoan structures, the falling in of the roof of which must have been the effect of a considerable shock (Fig. 170). In the superficial deposit and descending

[1] See *P. of M.*, i, p. 203.

Votive cups in vault from neighbouring Shrine of Double Axes—L. M. III *b*.

to a depth of about four metres—alternating with M. M. III sherds, precipitated by the original collapse—were found quantities of small pedestalled cups with a single handle, of the well-known squat 'champagne cup' type, very characteristic of the latest phase of Late Minoan III and of the period when squatters had partially reoccupied the Palace site. These seem to have subsequently worked down by means of chinks and swallow-holes, and they connect themselves, as we shall see, with the cult of the small neighbouring Shrine of the Double Axes, as it existed at the same late Period. But the Excavations of 1923 also brought out, on the Northern border of the collapsed area, pottery and other remains belonging to the last Palace Period (L. M. II) which had fallen in from that side, including important relics pointing to an earlier phase of the same sanctuary.

M. M. III *b* sherds below.

About four metres down, the occurrence of L. M. III *b* pottery became more intermittent, and the fragments found mainly represented the closing phase of M. M. III—the epoch of the original collapse. The deposit in fact belonged to the same archaeological horizon as the contents of the great M. M. III pottery stores of the Palace and of the Temple Repositories. It continued unchanged till the red rock floor was found at a depth of about 22 feet (6·50 m.) below the surface.

Exploration of the Great Cavity.

We had reached the floor of the vault by a stepped shaft worked by means of ladders, but in order to arrive at the surrounding wall it was necessary to have resort to a short tunnel in the N.E. direction, where there was least danger from the masses of collapsed blocks and boulders. To our surprise the rock wall when reached proved to turn at right angles inwards at this point and three descending steps came into view roughly hewn out of the same 'kouskouras' formation. Following these, close to the wall on the right, and for safety's sake with as small a passage way as possible, the skilled workmen engaged in this operation reached the floor of what proved to be a rock-cut cove forming a semicircular bay bordered by the rock-cut base of a supporting pillar. Tunnelling round they came upon three similar steps going up, which on further investigation proved to form one with the steps that had been already excavated.

In order to preserve this mysterious cove from falling in a pier of unexcavated rock had to be left at its mouth, while elsewhere the superincumbent blocks running across the middle of the area made further excavation at the time too risky. In the succeeding Season, however (1923), these were temporarily removed and careful digging made it possible to follow out over a wider area the ground plan of what proved to be a ramifying series of artificial vaults.

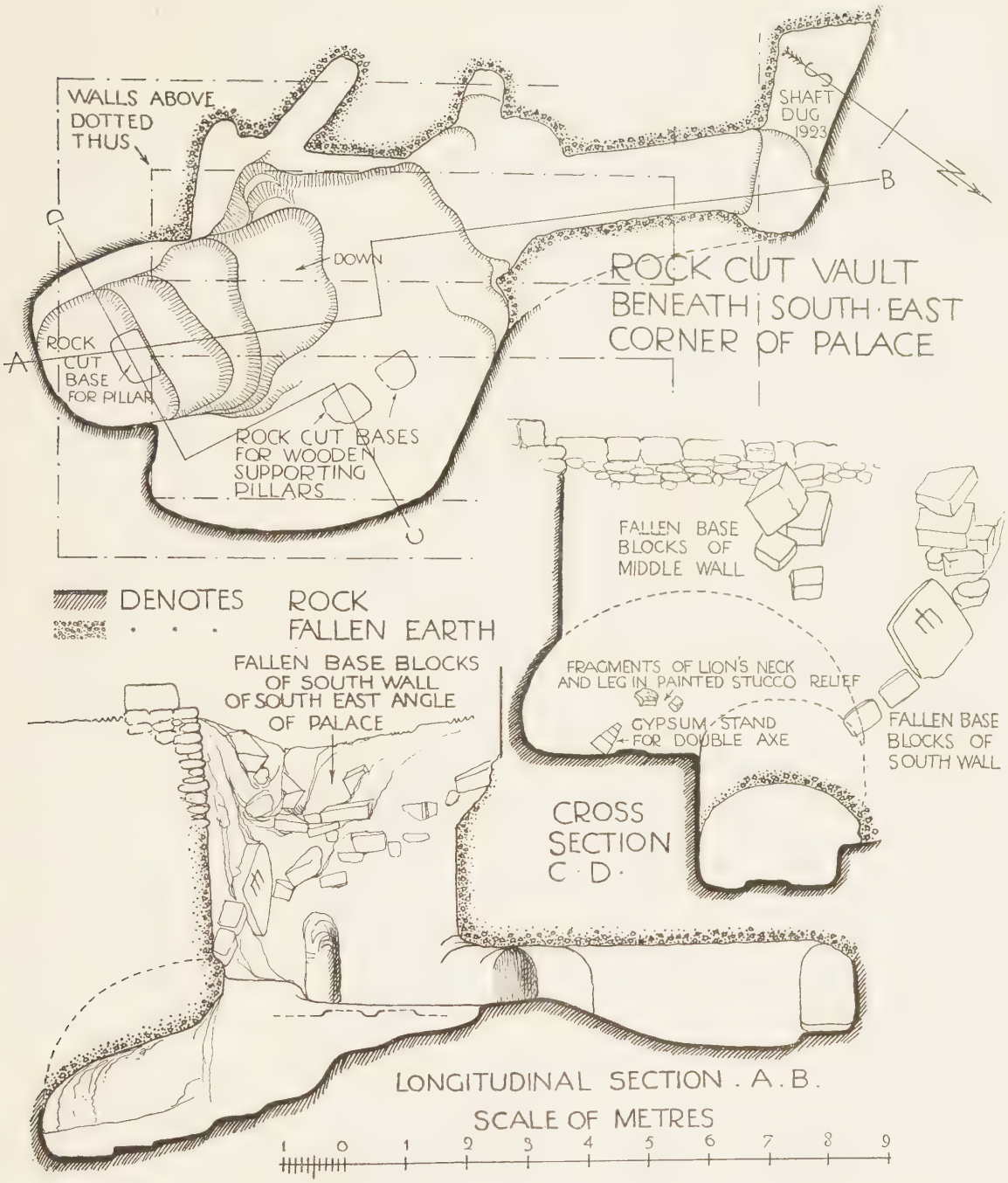

WALLS ABOVE DOTTED THUS
SHAFT DUG 1923
B
D
DOWN
ROCK CUT VAULT BENEATH SOUTH-EAST CORNER OF PALACE
A
ROCK CUT BASE FOR PILLAR
ROCK CUT BASES FOR WOODEN SUPPORTING PILLARS
C
FALLEN BASE BLOCKS OF MIDDLE WALL
DENOTES ROCK
FALLEN EARTH
FALLEN BASE BLOCKS OF SOUTH WALL OF SOUTH EAST ANGLE OF PALACE
FRAGMENTS OF LION'S NECK AND LEG IN PAINTED STUCCO RELIEF
GYPSUM STAND FOR DOUBLE AXE
FALLEN BASE BLOCKS OF SOUTH WALL
CROSS SECTION C·D·
LONGITUDINAL SECTION . A.B.
SCALE OF METRES
1 0 1 2 3 4 5 6 7 8 9

FIG. 171. PLAN AND SECTION OF ARTIFICIAL VAULT BENEATH SOUTH-EAST PALACE ANGLE.

It will be seen from the plan, Fig. 171,[1] that, though a considerable area of the original rock-cut floor, lying at different levels, was laid bare—over a length of 16 metres from East to West—it was only along certain sections that the surrounding rock walls could be followed.

Rock-hewn Bases of supporting Pillars and Deep Cove.

The floor exposed in our main pit showed a larger and a smaller bay, the latter, already mentioned, stepping down irregularly to a depth of 7·50 metres (*c.* 24½ feet) below the original surface of the ground. It had a lateral ledge on its S.W. side, and in front of the lowest step a fairly symmetrical base cut out of the rock, about 90 cm. by 55 cm. in dimensions, and designed for a massive wooden pillar to support the vault above. Beyond this the cove extended little more than a metre, and its curved end might well suggest the lair of a wild beast—the report indeed speedily spread through the Island that we had at last discovered the Minotaur's den! On an upper ledge to the left of this, about 5 metres below the surface, opened a much broader cavity, within which were the raised rock-hewn bases of two similar pillars of support. This broader recess lay immediately below a wall-line of the Palace which had been still preserved at its original level and which forms the Southern boundary of an area of great sacral importance, since it enclosed both a 'lustral basin' and the later shrine of the Double Axes (see plan, Fig. 186). It is not surprising, therefore, that very important relics of a religious character, which at one time or another had worked their way down from the adjoining Palace area, were found on or above the rock floor of the collapsed cavity on this side. These will be described in a succeeding Section.

Vaults and Galleries of early Mine for Red Earth.

What then was this system of artificial vaults and galleries? That it had nothing to do with the habitations of troglodytes is clear from the absence of pottery or other relics with the exception of those of M. M. III and Late Minoan date that had found their way below, partly, no doubt, by aqueous agencies, after the collapse. The same negative considerations make it impossible to trace any religious object, such as for instance the appearance of the deep recess with its descending steps and pillar and its side ledge might by itself have suggested. Fuller exploration in fact made it evident that we had to do with a subterranean quarry, excavated out of the soft rock. The Cretan workmen, who shared the same opinion, were no doubt right in the view, unanimously held by them, that the object had been to extract from the 'kouskouras' rock certain layers of a kind of red earth which has still a special value in the Island in connexion both with the structure of houses and with the potter's craft.

Uses of the Red Earth.

[1] Executed for me by Mr. Piet de Jong, Architect of the British School at Athens.

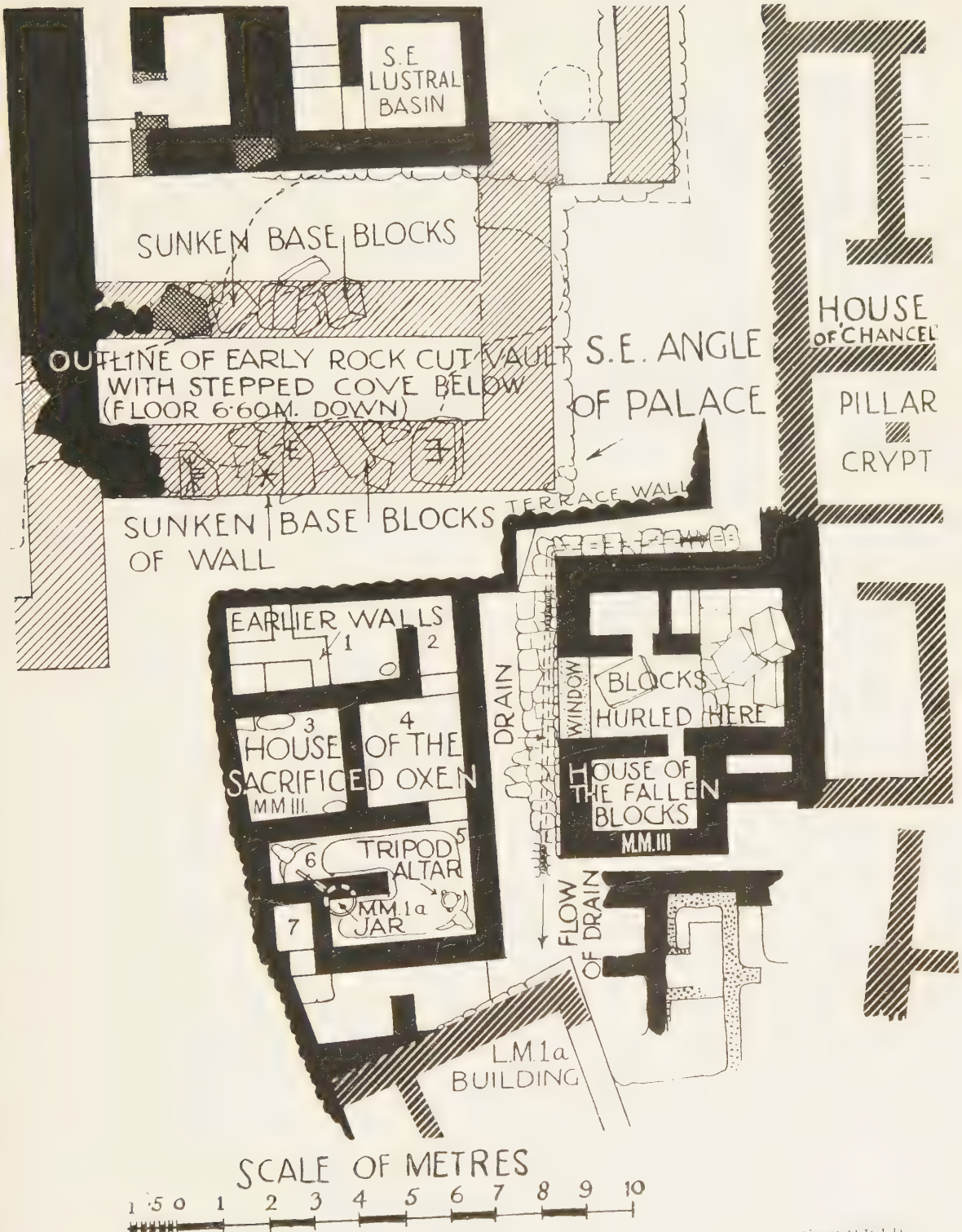


FIG. 172. PLAN OF 'HOUSE OF THE FALLEN BLOCKS' AND OF 'HOUSE OF THE SACRIFICED OXEN' SHOWING THEIR RELATION TO SOUTH-EAST PALACE ANGLE.

From the earliest Minoan age this earth was largely used both as a layer beneath foundations and in the interstices of wall-blocks as well as for the cement of pavements and roof terraces. It also formed an ingredient in the best pottery.

The blind end of the gallery in the deepest section of the vault, beyond the rock-cut base intended for a substantial prop, has therefore a very simple explanation. It marks a point where, for one reason or another, the mining operations broke off in this direction. It is probable that the character of the 'kouskouras' here did not seem to promise satisfactory results.

The fact that, as already noted, the sunken blocks of the South Wall of this area present signs of the very earliest palatial age may be taken to carry back the date of the rock-cut vault below to a still more remote period, since its very existence here seems to have been unknown to the builders. The 'earth-mine' itself, was essentially different in character from the regularly formed hypogaeum beneath the South Porch, but both exhibit the same facility in tunnelling the soft rock of the hill-side in the Early Minoan Age.

Investigation of submerged Houses bordering S.E. Palace Angle.

The collapse of the rock vault in this Palace area, the date of which is supplied by the earliest pottery found in the abyss, might itself be taken to point to a very considerable seismic disturbance. But the exploration of the terrace levels bordering this area to South and South-East, carried on concurrently with the investigation of the artificial cavity, brought with it an even more definite object-lesson.

'House of the Fallen Blocks.'

On a slightly lower level, not more than a metre and a half from the Palace angle on this side (see Plan, Fig. 172), was struck the corner of a small house, the date of which was found to correspond with the duration of the Third Middle Minoan Period, and which, as will be seen, had been filled in at its penultimate epoch. Here the excavation of the principal basement room and of the Eastern boundary wall of the house revealed some most striking phenomena. A speaking demonstration was in fact supplied that this little house had been ruined by huge blocks hurled—some of them over twenty feet —from the Palace wall by what could not have been less than a violent earthquake shock (see Fig. 173[1]). These great blocks, some more than a ton in weight, were left where they fell on the broken walls and the debris that they had brought down with them, above the basement floors. This house was never rebuilt, but, like another in the adjoining area West, was filled in with

House of the Fallen Blocks.

Overwhelmed by Earthquake Shock.

[1] From a sketch by Mr. F. G. Newton.

miscellaneous materials derived from the contemporary ruin. We shall see, moreover, that in the latter case some remarkable remains came to light at the floor level in two corners of the house, showing that this methodical filling in had only been carried out after a solemn expiatory sacrifice to the Powers below.

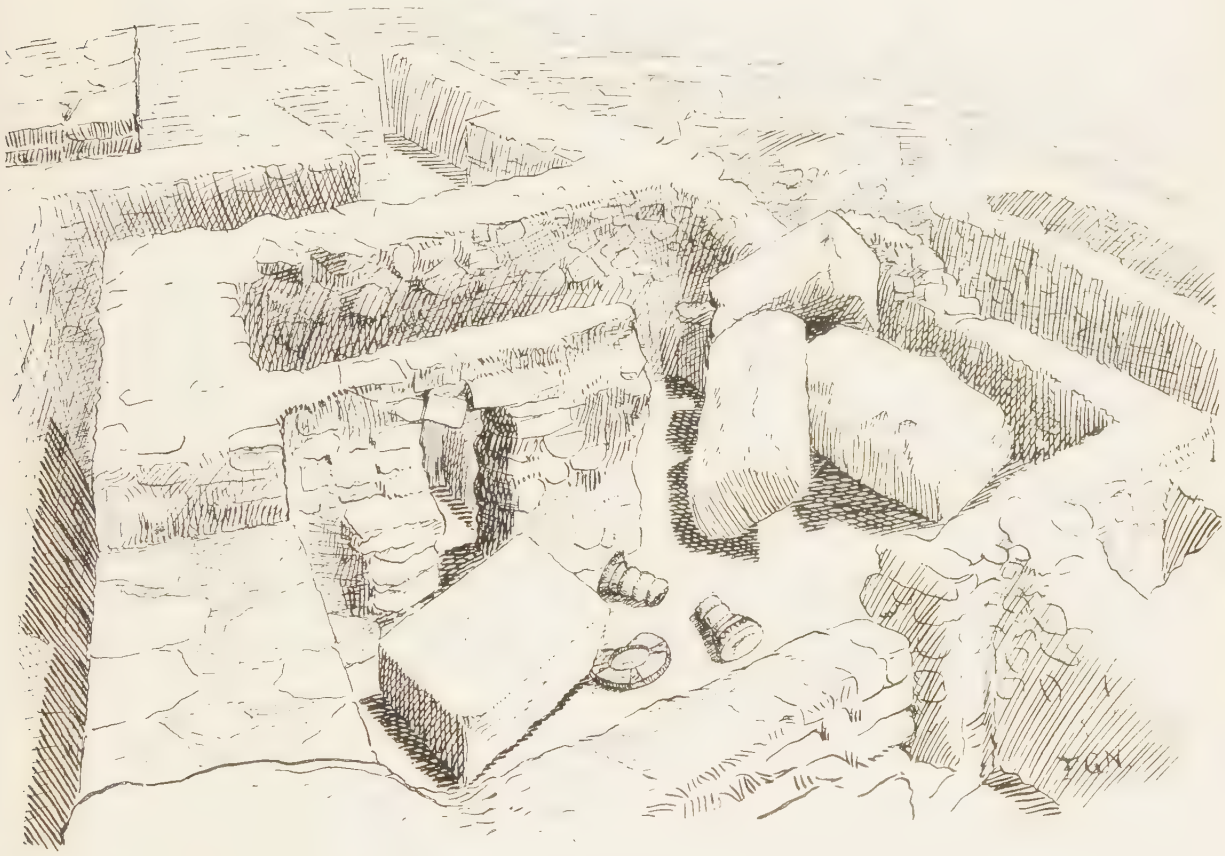


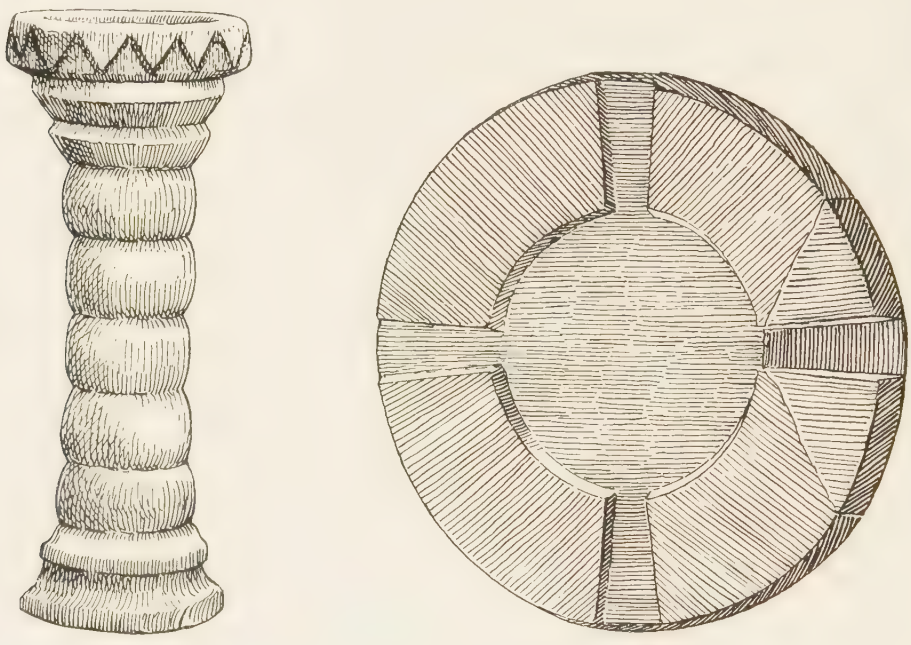
FIG. 173. BASEMENT ROOMS OF 'HOUSE OF THE FALLEN BLOCKS' SHOWING GREAT BLOCKS HURLED FROM SOUTH-EAST PALACE ANGLE. WINDOW OPENING TO LEFT.

This 'House of the Fallen Blocks' was built on quite a small scale, its longest outer wall to the West being only 6·8 metres in length, and its North wall about 6 metres. An interesting feature of the North wall was a rectangular interval in the masonry 20 cm. wide[1] which had clearly been filled by a vertical post, and answering to similar gaps in the structure of the Palace itself, such as are seen on a large scale in the South Terrace wall. The house seems to have been occupied by an artisan whose chief vocation

[1] 3·35 metres from the N.W. corner.

Relics from House.

was making stone lamps, the remains of eight of these being found on the floor level of the principal room. One of these, of which the whole was recovered, broken in two by a falling block, showed a curious bulbous stem (Fig. 174, *a*).[1] The mouths to hold the wicks for its recipient had not yet been cut out, the craftsman apparently having been interrupted in the middle



a *b*

FIG. 174. STONE LAMPS FROM BASEMENT ROOM OF 'HOUSE OF THE FALLEN BLOCKS': *a*, UNFINISHED OF WHITE LIMESTONE; *b*, UPPER SURFACE OF LAMP WITH FOUR WICKS (COMPLETED) OF DARK STEATITE.

of his work. Near this was part of the top of an exceptionally large lamp—of steatite like most of the others—42 centimetres, or nearly 17 inches, in diameter, made for four wicks and evidently intended for Palace use (Fig. 174, *b*). The larger room, in which these relics of the householder's industry occurred, although a basement, was lit by a broad window on the West side (see Figs. 172, 173). This was 1·90 metres wide.

Numerous fragments of at least four large *pithoi* found in the same basement space also seem to have belonged to the original floor deposit. These were of a class described below in connexion with the North-East House[2] and well known from the contents of the magazines of the M. M. III–

[1] A parallel example has occurred of a lamp with a bulbous stem.

[2] See below, pp. 418, 419 and Figs. 241 A, B.

L. M. I houses at Tylissos,[1] without knobs, but with raised rope pattern of a much conventionalized kind and 'trickle' ornament running down their sides.[2]

Access by ladders to closed basement.

Between this well-lighted workroom and the magazines to North and South of it were two narrow apertures one of which was only about 36 centimetres or 14 inches in width, and the other not more than half a metre. These mere slits could have hardly been doorways in the ordinary sense, and must have been primarily designed to give some light to small store-rooms. To these, as in the case of all the basement rooms, access would have been obtained by means of ladders from the upper story. The small space in the S.E. angle of the house must be regarded as an example of the store-cists so usual at the time.

A 'Tower House'.

It is specially to be noted that neither in this house, nor in that immediately West of it, was there any trace of entrances on the ground floor. The outer walls in fact, showing rough coursing, were in both cases built in one continuous fabric all round, within which the thinner inner partitions were simply built on without any keying. The 'House of the Fallen Blocks' must have been entered either by a plank bridge from the neighbouring terrace level, or by means of an exterior ladder, drawn up perhaps at night as is the case to-day with the Tower Houses of North Albanian mountain villages. This plan of building with a closed basement, the better to protect the stores within, is also very characteristic of Middle Cycladic houses.

Skirting two walls of this house and following the narrow lane that separates it from the house to the West (see Fig. 173) runs a diminutive built drain[3] with stone slabbing above and below, and side walls of smaller stone, set in a clay bedding.[4] This drain which runs towards the Southern slope must have ascended a continuation of the same lane Northwards, past other little contemporary dwellings. The traces of these, however, have been lost beneath the foundations of a more spacious mansion—the 'House of the Chancel Screen', described below—belonging to the epoch of restoration after the great earthquake. The lane itself has a mean width

[1] J. Hatzidakis, Τύλισσος Μινωϊκή.

[2] The raised rope decoration was made by the thumb, and the attempt to imitate the actual rope was more deliberate than in the L. M. I examples. Dr. Mackenzie notes that specimens showed signs of the use of a 'blunt wooden instrument like a paper-knife' (see below, pp. 418, 419, Figs. 241 A, B). Remains of similar pottery also occurred in the filling material of the house to the West. Rope pattern also occurred on many remains of smaller jars.

[3] This was about 14 centimetres wide internally with a depth increasing as it ran South from 14 to 25 cm. Its channel was cut out of the red 'kouskouras' rock.

[4] Dr. Mackenzie notes that in the case of Cycladic street construction and at Phylakopi the drains run along the middle of the passages.

A typical section of the M.M. III Town.

of about a metre and half in its Southern section between the two houses, but passes above through a bottle neck only three-quarters of a metre in width before broadening again in its upper course East and North. It had a pavement of stone slabs of the *kalderim* class, about 30 centimetres above the drain.[1]

Taken in connexion with the neighbouring house to the West, to be described below, the plan, as seen in Fig. 172, gave us for the first time a glimpse of the arrangement of a small section of the town of Knossos as it existed in the last Middle Minoan Period. In particular, it shows how the humble dwellings of the artisans and small burghers clustered round the very borders of the Palace, as they seem also to have done in other sections of the enceinte. So it is that in some Continental cities we see shops and hovels literally clinging to the walls of medieval cathedrals.

The South-East Polychrome Deposit.

Foundations of M.M. II Houses with 'Egg-shell' Ware, &c.

That much the same state of things existed in the earliest age of the Palace Sanctuary was made evident by structural remains of M. M. II and M. M. I date brought to light beneath the walls and on the floors of both the newly excavated houses. In the principal basement space of the 'House of the Fallen Blocks', a line of earlier wall foundations of flat slabs[2] had been worked into the later pavement level (see Plan, Fig. 172). These foundations showed the same orientation as the later structures, and continued under the wall running South. In connexion with this earlier stratum, moreover, remains of polychrome cups and bowls came to light, mostly representing the 'egg-shell' fabric of M. M. II *a*, some of which have already received illustration. Parallel phenomena were noted in the North basement space of the house to the West, where the lower courses of earlier walls rose above the floor level. In a kind of internal cell enclosed by these, moreover, and partly under the later wall, South, were found the remarkable series of polychrome vases described above, and reproduced in the Coloured Plate IX. Still earlier remains, indeed, were struck under a wall jutting out into the Southern basement room of this house. Here, embedded in the fabric, was a jar with dark glaze 'trickle' decoration on the buff slip surface and alternating zones of vertical and horizontal handles, altogether typical of the first Middle Minoan phase (M. M. I *a*).[3] It seems to have been used as a recep-

M.M. I *a* jar and water-pipe.

[1] This pavement lay about 1·80 m. beneath the surface.

[2] These were 70 to 75 cm. wide.

[3] Its height was 0·75 m. and the diameter at the top 0·70 m.

tacle for water, and a section of a terra-cotta pipe, resembling the early Palace examples, rested on its rim.[1] Inside it, together with remains of others, was a perfect cup of the same date, like those found in such quantities in the filling of the South Hypogaeum and in various 'proto-palatial' deposits.[2]

The M. M. I *a pithos* and water-pipe possibly belonged to an earlier habitation on this area. In any case the remains associated with the structures beneath both of the excavated houses point to an exact repetition of the history of the first great Age of the Palace itself. To judge from what had been preserved of these underlying structures, they were of appreciably better and more substantial fabric than the later work. The ceramic records show that they covered the whole period from M. M. I to a mature stage of M. M. II, when they seem to have shared in a similar catastrophe.

'House of the Sacrificed Oxen.'

'House of the Sacrificed Oxen.'

The more Westerly of the two houses, the North chamber of which was superposed on the earlier structures that contained the magnificent group of polychrome vases, was larger than the other, though still, in comparison with the neighbouring L. M. I houses, of abnormally small scale.[3] Its East wall was about 8·60 metres long, and that to the North 5·70. The outside walls, which were preserved to a height of about two metres, showed the same rough coursing and continuous structure as those of the 'House of the Fallen Blocks', without any external issue. This, too, was a 'Tower House'. As in the other case, all the rooms were basements, the Eastern suite of these opening into each other,[4] and apparently only accessible by ladders from above. The floors were covered with clay plaster, which was laid in many places on the soft red rock.[5] In the S.E. corner of basement 1 stood a jar with rolled rim and ruddy purple-brown surface of the usual M. M. III kind, containing slacked lime, perhaps for the purpose of some contemplated restoration. Rounded hollows appeared in the floor of 3, and beneath the party wall between 6 and 7 the M. M. I *a* jar already described

[1] Compare *P. of M.*, i, p. 142, Fig. 103.

[2] E. g., *P. of M.*, i, p. 173, Fig. 122, 7, 9, 10.

[3] At the N.W. corner of this house (see Plan, Fig. 172), between it and another contemporary house (beyond which had been overlaid at a different angle by a L. M. I building), was a kind of out-house with an inner closet.

[4] In the S.E. corner of Room IV is an added ledge of rough masonry, and in its S. wall above this ledge is a flat threshold-like slab, 90 cm. above the floor level, either in connexion with a wooden stair or to step over into Room V

[5] The floor of Room V shows a ledge 15 cm. wide round it beneath which it is sunken 15 cm.

was found embedded in an earlier structure. But the most interesting finds occurred in the N.W. and S.E. corners of the Southern basement.

Heads of Oxen and Tripod Altars.

Into each of these had been set the heads of two large oxen of the urus breed, the horn-cores of one of which was over a foot in girth at the base. In front of these were remains of portable terra-cotta altars with painted designs and tripod bases, a view of two of these, 56 and 90 cm. in diameter,

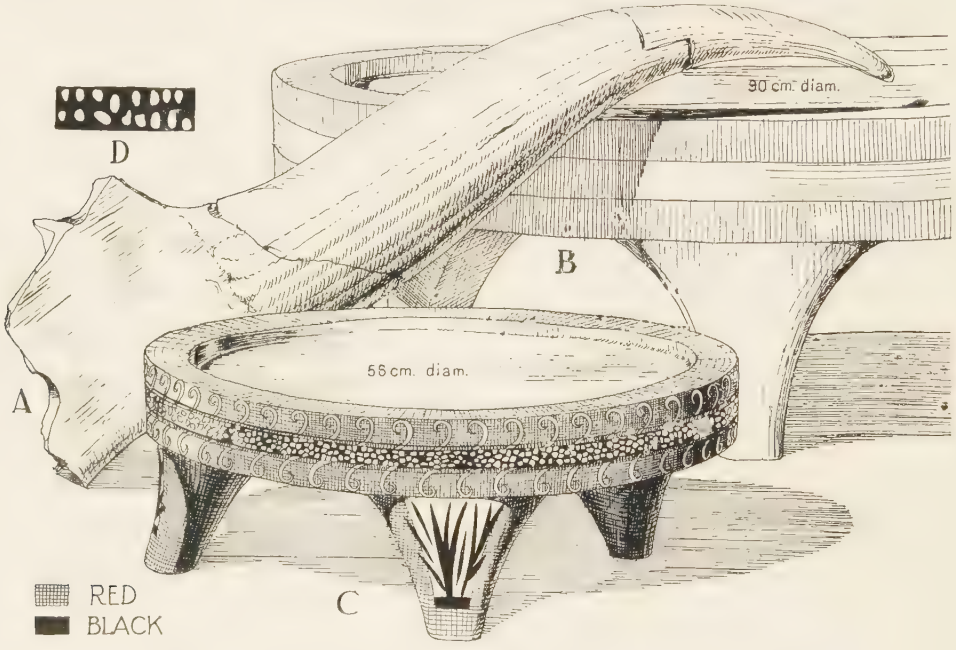


Fig. 175. Tripod Altars (restored) and Horn of Urus Bull: 'House of the Sacrificed Oxen'.

as reconstituted, is given in Fig. 175.[1] Of these, B, with its triple band, recalled a type of which whole piles were found in the 'Propaganda' building at Niru Khani, already described,[2] which also contained the huge votive double axes. The smaller stand C showed a more elaborate decoration in red and black on the buff ground, including a band imitating granulated stone and sprays of grasses on the feet.

Expiatory Sacrifice previous to filling in.

These sacrificial relics, thus ranged on the floor of the basement Chamber, could have only one signification. The methodical filling in of the ruined building and its final relinquishment as a scene of human habitation had been preceded by a solemn expiatory offering to the Powers below.

[1] Like the skulls of the oxen these had been much broken by the masses of filling material afterwards thrown on to them.

[2] See above, p. 279 seqq.

Its character recalls the words of the *Iliad* 'in bulls doth the Earth-shaker delight'.[1]

A Storehouse of M. M. III Domestic Pottery.

Rich deposit of M.M. III relics in filling-in material.

The filling-in materials found in the 'House of the Sacrificed Oxen' corresponded in all respects, except for their greater mass, with those of the neighbouring 'House of the Fallen Blocks'. In a superposed layer there occurred a sprinking of 'squat champagne cups', and some other pottery of the Reoccupation epoch and belonging to the outskirts of the waste heap connected with the little neighbouring shrine. Otherwise there was no sign of any stratification above the floor levels. The ceramic and other remains piled within illustrated every phase of the Third Middle Minoan Period, but the overwhelming mass of them belonged to its concluding epoch. The abundance of ceramic relics was perhaps unexampled in any area excavated on the site, and, taken together, they supply an unique repertory of the ceramic forms in vogue during that Period, especially for domestic use, including some remarkable new types.

Including specimens of M.M. III *a* Class.

Amongst the elements belonging to the earlier phase (M. M. III *a*) may be mentioned fragments of a 'hole-mouthed' spouted bowl with two handles, and with white spots on the dark ground of its body, of a type which, as already pointed out,[2] is the clay imitation of a class of similar vessels in brown limestone inlaid with shell. These inlaid vessels, of which many occurred in the Lustral Basin and Initiatory Area to the North of the Palace site, belong to the same stratigraphic horizon as the *alabastron* lid there found, inscribed with the name of the Hyksos king Khyan.[3] With these, too, must be equated the upper part of an ostrich-egg 'rhyton' of the same class as that with the decorative groups of palm trees already figured.[4] It had a ring collar and bands of 'matt' white and terra-cotta red over its dark purple-tinted lack-lustre glaze, and illustrated the same subdued polychrome tradition that characterizes the earliest M. M. III phase.[5] To the same epoch too must be referred some fragments of the bowl and pedestal of a remarkable vase of the 'fruit stand' type that plays such a considerable part in the ceramic history of the First Two Middle Minoan Periods. A fine

[1] *Iliad* xx. v. 403 seqq.:

ἤρυγεν, ὡς ὅτε ταῦρος
ἤρυγεν ἑλκόμενος Ἑλικώνιον ἀμφὶ ἄνακτα
κούρων ἑλκόντων· γάνυται δέ τε τοῖς ἐνοσίχθων.

[2] *P. of M.*, i, pp. 412–14 and Figs. 297, 298.

[3] *Ib.*, p. 419, Fig. 304, *b*.

[4] *Ib.*, p. 595, Fig. 436, *c*.

[5] To the same context belongs the remains of a jug with ring collar and a band of ruddy yellow round its rim. It had white dots on the dull black glaze of its body, like the imitative stone forms described above.

FIG. 176. DOMESTIC VESSELS OF M. M. III *b* DATE FROM FILLING IN 'HOUSE OF THE SACRIFICED OXEN'.

M. M. I example with floral decoration has been already illustrated,[1] and the bowl of another showing curved flutings of M. M. II date.[2]

The occurrence in this deposit—though clearly delimited from the latest products of M. M. II—of works so reminiscent of the technique of the preceding age throws a new light on the earlier ceramic phase of the Third Middle Minoan Period—for the first time distinguished as 'M. M. III *a*' in the preceding volume. The evidence here supplied of a slight survival of polychrome traditions has itself a special value, in view of their almost total extinction by the close of this Period.[3] This evidence, as will be shown below, was repeated in the case of the floor deposits found in the basements to the North-West of the site in 1926.

Masses of M.M. III *b* Pottery.

But the amount of fragments illustrative of this M. M. III *a* phase found in the deposit was infinitesimal as compared with the great mass of the ceramic remains there discovered, which unmistakably represented the class of domestic ware in use during the maturer phase of the Period. The pottery reproduces the types of the Temple Repositories and of other contemporary hoards referred to above. The larger vessels, such as the jugs and pitchers—all hand-made—for the most part show the dark purplish brown lack-lustre glaze so typical of this epoch, but at times display bands or sprays of brown on a dull white ground (Fig. 176, A–D). The 'trickle' motive was frequent. The tortoise-shell ripple decoration also occurred in the stage represented by other contemporary deposits.

Baths and 'Baking Dishes'.

In both houses were fragments of baths; that in the 'House of the Fallen Blocks' showing broad curving bands apparently spiraliform, on a semilustrous glazed slip.[4] 'Baking dishes' with vertical sides and projecting rims, sometimes showing slits below, were common, and a large number of stone querns for grinding corn were discovered in the 'House of the Sacrificed Oxen'. The 'honey-pot' type D recalls the specimen from a Palace Magazine with a graffito inscription of the linear Class A.

Amongst the smaller domestic vessels brought out, ewers with cut beaks, and plain cups were abundant. On the cups, of 'Vapheio' shape (R), and the shallow bowls or salad plates (Fig. 176, I, J), often covered with a ruddy

[1] *P. of M.*, i, p. 184, Fig. 133, *e*.

[2] *Ib.*, Suppl. Pl. III, *b*, and see pp. 242, 243.

[3] Amongst other links with the past, moreover, must be mentioned certain fragments of jars and of a cup of the 'Vapheio' type showing a surface decoration curiously reminiscent of the mottled ware of Vasilikì. Patches of red here appear beside black or brown, but the effect in this case was not, as on the earlier ware, due to the effects of the burning, but was produced by the regular M. M. III glaze technique.

[4] The walls were of well-baked terra-cotta clay with sand particles in it.

tinted glaze, volute flutings, due to the quick wheel, were much in evidence, and the latter showed the marks of the cutting string on their base.[1] 'Fruit stands' with a short pedestal and curving rims (Fig. 176, o) also occurred with a similar ruddy tint.

Side-mouthed suspension-pots—for birds.

Some of the more perfect specimens of types represented in the deposit are reproduced in Fig. 176, but the fragments point to a much greater number of varieties. Among the remarkable forms that were here forthcoming, were certain flat-bottomed vessels with round openings on the side, surrounded by an outward curving or 'flaring' lip, and provided above with a loop for suspension[2] (Fig. 176, *e* and Fig. 177). It was at first thought that they might have been made to shelter small clay lamps, so that they could be hung up as lanterns, of a kind still common in the Island. But the clay hand-lamps—with projecting handles and incurved rims—of which several specimens were found (Fig. 176, *h*), were all too broad to pass through the openings of these vessels which, moreover, did not show any trace of smoke stains within them.

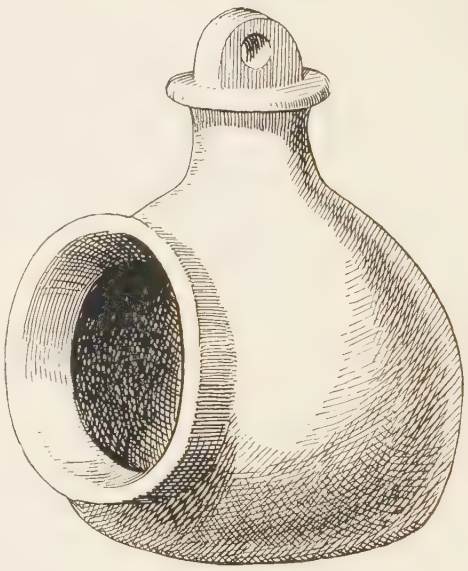


Fig 177. Suspension-Pot from 'House of the Sacrificed Oxen'.

It is clear that this type of vessel is quite distinct from the 'hut-urns' described above, like that from the Spring Chamber containing the figure of the Minoan Goddess[3] or the parallel forms from Phaestos. The possibility that the clay boxes were used as pigeon holes seems to be excluded by their small dimensions, though they might, perhaps, have served for turtle doves. The most natural comparison seems to be with the bottle-shaped receptacles, which are still fixed against house walls in Syria and also in some parts of Italy for the nesting of swallows.[4] At Knossos, indeed, where

Minoan fondness for Swallows.

[1] See for these signs of fabric, *P. of M.*, i, pp. 589, 590. Specimens of the shallow bowls very typical of this epoch are given on p. 589, Fig. 433.

[2] Fragments of several of these occurred and sufficient to reconstitute two specimens. Clay suspension loops belonging to similar vessels had occurred in other contemporary deposits.

[3] See above, p. 129 and Fig. 63.

[4] An illustration of one of these nesting bottles inserted in the wall is given in Ford

swallows are apt to instal themselves to-day wherever there is an accessible beam or rafter in the building, their localization may have been dictated by motives of cleanliness. There is every evidence, indeed, that the birds themselves appealed as much to the artistic taste of the Minoan as of the modern Japanese. They were worked into their embroidery[1] and engraved on their signets,[2] and a seal-impression from the Palace illustrated below[3] shows a Minoan lady with a swallow at the end of a string. The Minoans' delight in the 'swallows of the sea', the *Χελιδονόψαρα* or flying fish, has already received illustration.[4]

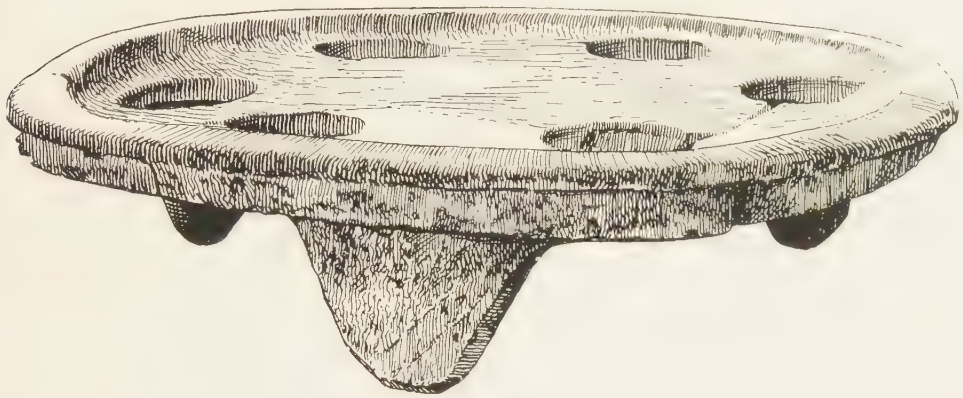


FIG. 178. CLAY EGG-STAND, WITH METALLIC LUSTRE.

Egg-stands.

The utensil illustrated in Fig. 178—a circular tray, with a raised rim, on short tripod feet, and showing six round perforations—is clearly an egg-stand, made on the same principle as modern 'egg-racks'. It is 26 cm. or slightly over 10 inches in diameter, and the holes are just narrower than the average circumference of an egg. Remains of several similar specimens were found in the deposit, but the greatest hoard was from the neighbouring Palace angle between the 'South-East Insula' and the Southern border of the Domestic Quarter. Here, beneath the upper terrace level, on which ran the foundation wall of the Palace, there seems to have been an open

Madox Brown's picture, 'Elijah and the Widow's Son', where the shadow of the returning swallow is thrown on the wall below it (Ford H. Hueffer, *Ford Madox Brown*, Plate opp. p. 202).

[1] On the fragmentary fresco figure of the 'Knossian School' (M. M. III) found at Phylakopi in Melos flying swallows are embroidered on the front of the robe (*Phylakopi*, p. 73, Fig. 61 and p. 74, where Professor Bosanquet refers to M. Gilliéron's restoration of the design).

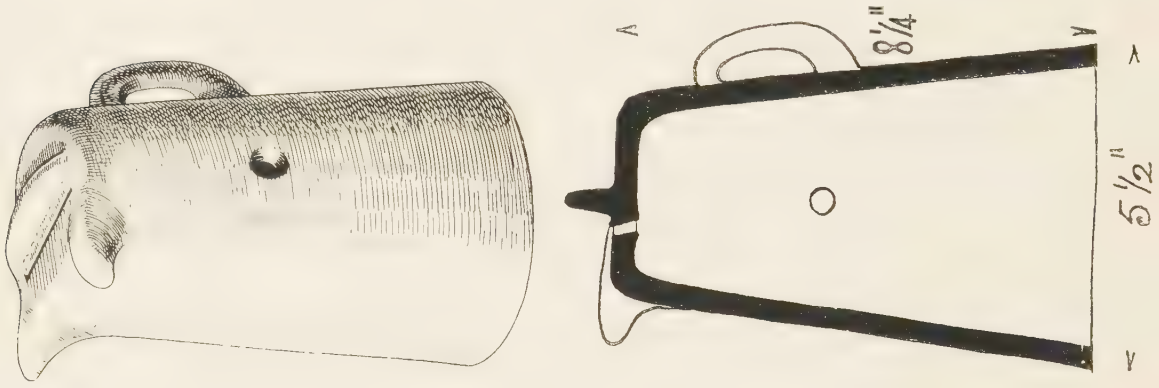
[2] As, for instance, on a three-sided cornelian bead-seal of a M. M. III class (cf. *P. of M.*, i, p. 670, Fig. 491) one side of which shows a ship.

[3] P. 766, Fig. 497.

[4] *P. of M.*, i, p. 520, Fig. 379, and p. 541, Fig. 393.

space or yard into which discarded or broken pottery was heaped from the neighbouring sanctuary, above its Western border that centred round the Shrine of the Double Axes. The waste heap connected with the earlier stage of this was of very considerable extent and represented both the initial and the later phase of M. M. III. From the masses of small plain cups[1] here brought to light—once, no doubt, the recipients of drink or food-offerings—this part of the site became known to our Cretan workmen as the *Καφενεῖον* or 'Coffee-house'. From the plentiful remains of these egg-stands in the same deposit, we may infer that in this case these too had served a votive rather than a

Also from Καφενεῖον.



a *b*

Fig. 179. *a*, 'Ariadne's Clew-box': Slotted and Perforated Vessel from 'House of the Sacrificed Oxen'; *b*, Section.

purely domestic purpose. Many of these, like the restored example (Fig. 178), were of very hard biscuit, producing a good clink and covered with a black-brown glaze, exhibiting a fine metallic lustre. It seems possible, therefore, that in the preceding age silver egg-stands of this class may have existed.

Slotted vessels perhaps for skeins of wool.

But of all the ceramic types represented in the filling of the earthquake-stricken houses, the most unique in character was that shown in Fig. 176, *f*, and Fig. 179, and of which fragments of two or three other examples were found. It is an object of hollow cylindrical form, open at one end and closed at the other, except for a slot. It is provided with two feet in front to enable it to stand in its proper position, while a loop handle on the crest of its circumference was doubtless added for convenience in lifting. On its face, above

[1] For the forms of these cups compare *P. of M.*, i, p. 589, Fig. 432. Cups resembling the latest class here represented, probably in that case of L. M. I date, were found ranged in regular rows round the pillar of a crypt in a house of Gypsádes turned upside down and covering carbonized vegetable remains, apparently of food-offerings (D. G. Hogarth, *B. S. A.*, vi, p. 96).

the slot, is a somewhat broad, projecting 'tongue', and on each side of the cylinder is a round hole so that a rod of some kind might be passed through, which could be turned if necessary by an external handle. The section of this utensil is given in Fig. 179, *b*, and its details suggest that the rod across the interior was for winding or unwinding a skein of wool, which would have been drawn in or out through the slot and over the projecting clay 'tongue'. On the site this puzzling object was named 'Ariadne's Clew-box'. The breadth of this 'tongue' looks as if strands of material had been spread out over it for some wool-carding process.

FIG. 180. *a*, SHALLOW SUSPENSION BOWL OF CYCLADIC FORM, AND *b*, *c*, FRAGMENTS, 'HOUSE OF THE SACRIFICED OXEN'.

Bowls of Cycladic types.

There do not seem to have been any fragments of 'bird vases', such as those found in the 'Temple Repositories', which may have contained Melian wine, but there were found numerous other imported vessels of Aegean types. The most frequent type was that shown in Fig. 180, a shallow bowl with turned-in rim and suspension handles, well represented at Phylakopi. Another form, of early Cycladic derivation, here forthcoming was a jar bulging below, and with two suspension handles well down on the side with large borings.[1] Although these types also range to the Helladic Mainland it is safer in the present case to regard them as importations from the Cyclades. One fragment of a stem, apparently of a true Minyan chalice of the grey 'through and through' ware, also came out.

[1] Dr. Mackenzie notes that 'the clay as well as the make and type seemed un-Cretan, and the vessel may well have come from one of the Cyclades'. He adds that 'this type also occurs on the Helladic mainland' (Early Helladic III–Middle Helladic I–II).

The masses of plain pottery extracted from the filling-in of these ruined M. M. III houses pointed to a falling off in ceramic refinement from the finer style so well illustrated by the store of polychrome vessels found in the underlying structures. It has been suggested in a former Section of this work that compensation might have been sought in other directions, such as in the Palace fabric of faïence, though this could have only slightly affected the poorer householders. Some fragmentary specimens were, however, brought out, including part of a type of small foliated bowl of which many Late Minoan specimens in steatite are known under the name of 'blossom bowls' (Fig. 181). Its core consists of a pale yellow paste. This fragment may well have drifted here from the neighbouring Palace area.

Faïence fragments.

Fig. 181. Fragment of 'Blossom Bowl' of Faïence. (Width of Fragment, 5 cm.)

It seems at any rate, to be fairly certain that some fragmentary remains of painted stucco reliefs that here came to light were of palatial origin. One of these was a large bossed rosette showing an early colour scheme.[1] Of still more importance was a group of small fragments belonging to the throat and lower part of the jaw of a painted plaster bull in somewhat high relief. It was below life size, but the ruddy surface tint and the character of the folds of the dew-lap suggested close comparisons with the fine relief of a bull's head found in the Northern Entrance Passage and belonging apparently to a great composition of the kind shown on the Vapheio cups. A composition of this nature, adapted for porticoes and galleries, would have been clearly out of place, even on a somewhat reduced scale, in the narrow spaces offered by such humble dwellings as those that contained the filling materials. It may be suggested that these fragments of relief had belonged to the neighbouring area of the Palace enclosed within its South-Eastern angle where the subterranean vault has come to light, and that they had been derived from a landing of the staircase contained within the original overlying structure.

Parts of painted stucco relief of bull.

But of plastic works brought to light in the filling, the most important was a terra-cotta relief of a youth, the original height of which was about

Terra-cotta relief of youth.

[1] Including deep, slaty blue and black.

eleven inches, and of which the trunk and the legs to the knees were preserved. Its attitude, with the body thrown back, presents an interesting anticipation of that of the processional figures on the frescoes belonging to the Entrance Corridor of the Palace and of the adjoining South Propylaeum and an illustration of this relief is therefore reserved for the Section dealing with these frescoes.[1]

Earthquake coincides with closing phase *b* of M.M. III, but not its end.

Everything points to the great mass of the remains found in the filling of the 'House of the Sacrificed Oxen' and the adjoining 'House of the Fallen Blocks'—which was of identical composition—having represented the mature stage of the Third Middle Minoan Period. The prevailing ceramic types, as has been shown, were identical with those of a whole series of deposits throughout the Palace area. There were no relics in it or in any of these deposits of the succeeding Late Minoan Age. At Knossos, therefore, the great physical catastrophe of which we have now obtained direct evidence approximately coincides with a turning-point in cultural history. The great Earthquake here was felicitously timed, though it cannot be regarded as having set an absolute term to the M. M. III phase of culture. It was coincident with the phase best represented in the Temple Repositories that marks the full development of M. M. III *b*. But, as will be shown below, the restoration of the Palace and of the surrounding houses of the Town of Knossos must still be reckoned as having come within the lowest limits of that Middle Minoan epoch as ceramically defined. The associated ceramic remains demonstrate, in fact, that in that department the L. M. I stage of evolution had not yet been reached.

Shrinking of Palace boundaries on South and North-West.

Some parts of the Palace area, such as the Southern Corridor—at least its Western Section and the South-Eastern corner, underlain by the newly discovered vault—were now definitely abandoned. A section to the North-West, including the 'Initiatory Area', seems to have been already given up. Only in the Domestic Quarter do we find considerable structural continuity even in the upper stories. We are supplied, on all hands, with a definite archaeological landmark.

[1] See below, p. 753.

§ 46. Knossos and Candia Earthquake Centres: the Reaction of Seismic Conditions on Minoan Cult.

Propitiatory ritual and Ceremonial filling in of 'House of the Sacrifice'; Knossos and Candia great Earthquake Centres; Long Succession of Historic Earthquakes; Venetian Duke's Account of great Earthquake of 1508; Earthquake at Candia of 1856; Its Course from Malta to Rhodes; Average of two serious Earthquakes to a Century; Earthquake of June 26, 1926—Personal experiences; Destructive Effects in Town and Villages; Damage to Museum; Course and Epicentre similar to Earthquake of 1856; Ida a barrier; Knossos more liable to Earthquakes than Phaestos; Importance of seismic factor in its history; Chief breaks in continuity ascribed to this Cause; Political Effects of Earthquakes; Impulse towards emigration; Probable Connexion with Chthonic aspects of Minoan Cult; Sunken Lustral Basins and Pillar Crypts; Pillar Cult of Goddess as the 'Stablisher'; Sacrifice of Bulls; Arrangements for sacrificial offerings in Pillar Crypt of 'Royal Villa'; The 'Earth-shaker' as a Bull in popular belief.

Propitiatory sacrifice and ceremonial filling in.

If, on the one hand, the huge blocks hurled from the Palace walls that overwhelmed one of the small adjacent houses described in the last Section must be attributed to an earthquake shock of considerable violence, the tripod altars and horns of urus bulls found in a chamber of the other may be reasonably accepted as evidence of some kind of propitiatory sacrifice. The filling in of both dwellings bears thus an expiatory character and the possibility suggests itself that one or more bodies of human victims stricken down by the catastrophe may, at least in the latter case, have been previously removed. One can even imagine that the Minoan priest who carried out the sacrificial function had uttered a solemn warning against those who should undo his ceremonial work.

Shock experienced at time of Excavation.

In the case of the 'House of the Sacrifice' it is certain that the task of clearance was not accomplished without a token of the Earth-shaker's displeasure. Just as it was completed, at 12.15 p.m. on April 20, 1922, a short sharp shock, sufficient to throw one of my men backwards, accompanied by a deep rumbling sound, was experienced on the site, and throughout the entire region.[1] Although in this case no real damage was done, it

[1] The shock was noted at the Athens Observatory at 12 hrs. 22 m. 50 s., and its epicentre fixed at a distance of 280 kilometres between Santorin and Crete, but rather nearer

served as a reminder of the abiding liability of this region to seismic disturbances, the evidences of which can be traced back as far as historic records go.

Knossos and Candia District a great seismic centre.

The geologist, V. Raulin, who has summed up the seismic evidence as regards the Island, was led to the conclusion that 'it would be difficult in Europe or indeed anywhere on the surface of the globe, to find a non-volcanic region, the soil of which is so unfavourable for the conservation of monuments'.[1] The peculiar liability of Candia itself to violent shocks is illustrated by the fact that in the much smaller town of Rethymnos, as well as in Canea, many more remains of Venetian buildings have been preserved.

Long succession of historic Earthquakes.

The attempt was early made to explain the disappearance of many of the 'hundred cities' of Crete by a great earthquake.[2] That of Nero's time in A. D. 66 was followed by one in A. D. 251; afterwards regarded by the faithful as a judgement for the Decian persecution in the Island, and a great destruction also occurred in July 375 during the First Consulship of Valentinian and Valens. Beginning, again, with a widespread catastrophe throughout the whole length of the Island in 1490, thirty earthquakes are recorded between the middle of the thirteenth century and the last quarter of the nineteenth, of which nine were specially destructive.[3]

Venetian Duke's account of Earthquake of 1508.

Detailed accounts of the destruction wrought by two of these in the town of Candia have been preserved by eye-witnesses. A letter of Girolamo Donato, the Venetian Duke of the Island, to his friend Pietro Contarini describes one that occurred in the night of May 29, 1508. He gives a vivid picture of the whole population, roused from their beds, making their way as best they could, amidst the falling materials, with shrieks and wailing prayers, towards the City gates to gain the open, while priests bore aloft icons and sacred images and carried round the Host by the light of lanterns. The Earth gave forth 'hideous roarings', and a sound 'like the clashing of arms', which

the latter island. It was of a 'tectonic' character and had nothing to do with any volcanic activity at Santorin. A connexion (such as had at first suggested itself to me) between the ceramic deposits buried by the Santorin eruption and the M. M. III remains earthed under at Knossos is further excluded by the date of the former, which belong to L. M. I. See on this, Renaudin, *Bull. de Corr. Hell.*, xlvi, 1 (1922), *Vases de Théra*, p. 145.

[1] The author of the Life of St. Anastasius invokes the earthquake of A.D. 375.

[2] V. Raulin, *Description physique de l'Ile de Crète*, i, p. 429. He has there (p. 424 seqq.) excerpted the summary account of the earthquakes that concern Crete given by Alexis Perrey in his *Mémoire sur les tremblements de terre ressentis dans la péninsule Turco-Hellénique et en Syrie* (*Acad. royale de Belgique: Mémoires couronnés*, t. xxiii, 1850). Perrey's notices, however, necessarily brief, are very incomplete.

[3] Viz. those of 1246, 1304, 1490, 1508, 1547, 1612, 1665, 1810, and 1856. Cf. Raulin, *Description physique de l'Ile de Crète*, i, p. 429.

accompanied the crash of the falling houses. These were tossed 'like ships in a storm and not only moved sideways, but seemed to leap up'.[1] The Duke himself, barefooted, and with his youngest child in his arms—snatched from a bedroom, one wall of which had already crumbled away—reached the door of his official quarters with his family clinging about him, to find the Audience Chamber of the Palace already a heap of ruins and the main street to the harbour impassable owing to the debris. The Palace Court was dangerous owing to the height of the buildings, but the family party finally found their way through the narrow lanes of the town between 'nodding walls' to a more open area where they could pass the rest of the night. The city walls themselves held out against the repeated shocks, and the actual loss of life was not over 300—a contrast to that experienced on some later occasions. In the great overthrow that befell Candia in 1810, according to the report preserved, 2,000 persons lost their lives.

The great Earthquake at Candia in 1856.

The Earthquake of October 12, 1856, recalled at Candia by living witnesses, claimed nearly 1,200 victims, of whom 538 were killed and 637 seriously injured.[2] The day had been calm and clear, with a slight N.N.E. breeze and the barometer was set fair, when at 2.30 in the morning the inhabitants were roused from their beds by a tremendous shock. Out of 3,620 houses only 18 were left standing and undamaged, and the overthrow was followed by a destructive fire in the bazaar. The wooden shops and booths to the number of 1,314 were, however, preserved, and the Pashas' Konak of the same material also stood the shock and was turned into a hospital for the wounded. Amongst the signal losses now suffered was the destruction of the old vaulted entrance to the inner City—the Voltone of Venetian Candia—the Orthodox Metropolitan Church of St. Titus (the Vezir Djamì) which had survived all previous catastrophes, and at the same time the Roman Catholic Cathedral of San Francesco on the East bastion. The walls of this were two metres thick, with still more massive foundations, and

[1] 'Aedes non aliter motae sunt ac solent commotis maris fluctibus agitari naves, neque solum visae sunt nutare in latus sed velut saltu quodam concuti . . .' Letter of Hieronymus Donatus, *Creta Sacra*, ii, pp. 408, 409.

[2] Nikolaos Stavrakis, who describes this earthquake in his Στατιστικὴ Κρήτης (1890), p. 109, had witnessed it as a boy of 10 and had himself been seriously injured. A good general account of this earthquake and its effects was given by Dr. Xanthudides in the Νέα Ἐφημερίς of Candia ('Ο Σεισμὸς τοῦ *1856*, Ap. 27, 1925). He pointed out in reference to it the dangerous character of the construction of the new Museum building at Candia, made, without any regard to local conditions (or indeed to scientific requirements), with heavy iron beams to its roof and of excessive height. A future Curator, he added, might be set the task of re-excavating the doubly destroyed remains of the precious relics of the Minoan Palaces from beneath its ruins.

the deep fissures and huge blocks scattered over a distance of more than 200 metres must have afforded a close parallel to the similar evidences of a colossal overthrow that excavation has revealed along the front and angles of the Minoan Palace of Knossos towards the Southern steep.

The immediate neighbourhood of Candia up to the North-Western foothills of Mount Ida and to the borders of the Pedeada province in the other direction was also severely stricken. In the small village of Voutes, where there were 42 deaths, no walls remained standing above a metre in height. The path of destruction continued farther along the Northern section of the Island to its extreme Eastern district. The centre of seismic violence had propagated itself, indeed, as if along a crack in the Earth's crust, by a line running almost directly from West to East. The first of a series of severe shocks was felt at Malta at 2.11 a.m., reaching Candia 19 minutes later. From Eastern Crete the desolating course of the earthquake passed through the intermediate islands of Kasos and Karpathos to Rhodes, the city of which was struck at 2.50 a.m. with disastrous effects on the castle, towers, mosques, and houses. In the Greek quarter only two out of about a thousand houses remained intact, while many of the inhabitants were buried in the ruins. At the same time a seismic offshoot running South-East affected the Nile Valley, and some minarets and houses fell at Cairo and Alexandria.

Its course from Malta to Rhodes.

Two outstanding features in this tale of catastrophe specially concern our present subject. Great as was the devastation at Rhodes, and elsewhere, it was at Candia that the earthquake attained its maximum power of destruction. On the other hand, in volcanic Santorin, lying only about 80 miles North, which might have been expected to be a centre of disturbance had the origin been of a volcanic nature, nothing more than a feeble shock was experienced, followed by a slight oscillation.

During the last five centuries, of which we have some historic record, the Candia district has been stricken, according to a rough calculation, well known to the inhabitants, by two serious earthquakes in every hundred years. As the last of these occurred in 1856, another catastrophe seemed overdue, and indeed some premonitory shocks connected with the same epicentre had occurred at intervals during the years succeeding the slight earthquake of April 1921.

Average of two serious earthquakes to a century.

Personal Experiences of Earthquake of 1926.

Occupied as I largely was in the Spring of 1926 with tracing seismic action in the phenomena presented by the ancient remains at Knossos, the imminence of a fresh convulsion had become to me a kind of obsession,

Earthquake of June 26, 1926.

when on June 26 of that year, at 9.45 in the evening of a calm, warm day, the shocks began.[1]

Personal experiences.

They caught me reading on my bed in a basement room of the head-quarters house—the Villa Ariadné—and, trusting to the exceptional strength of the fabric, I decided to see the earthquake through from within. Perhaps I had hardly realized the full awesomeness of the experience, though my confidence in the strength of the building proved justified, since it did not suffer more than slight cracks. But it creaked and groaned, heaved, and rocked from side to side, as if the whole must collapse. Small objects were thrown about, and a pail, full of water, was nearly splashed empty. The movement, which recalled to me a ship in a storm—as it had to the Venetian Duke in 1508—though it was of only a minute and a quarter's duration, already began to produce on me the same effect of sickness as a rough sea. A dull sound rose from the ground like the muffled roar of an angry bull: our single bell rang, while, through the open window, came the more distant jangling of the chimes of Candia Cathedral, the belfreys as well as the dome and cupolas of which were badly damaged. As the quickly repeated shocks produced their cumulative effects, the crashing of the roofs of two small houses outside the garden gate made itself audible, mingled with women's shrieks and the cries of some small children, who, however, were happily rescued. Some guests, who were upstairs or on the roof, had made their way out past the lower terrace—on which a round stone table with a thick Roman pedestal was executing a *pas seul*—and thence to the open, between trees so violently swayed that it looked as if they must fall. Meanwhile, a dark mist of dust, lifted upwards by a sudden draught of air, rose sky-high, so as almost entirely to eclipse the full moon, house lights reflected on this cloud bank giving the appearance of a conflagration wrapped round with smoke.

Like storm at sea.

Roaring sound from below.

Dust cloud eclipsing Moon.

Not only did the head-quarters house resist the shocks well, but, thanks largely to the ferro-concrete of the floors, very little damage was done to the works of reconstitution in the upper stories of the Palace. The upper part of a masonry pillar of recent construction which was moved bodily several centimetres due South supplied, indeed, a good index of the prevalent direction from which the waves of disturbance came. In neighbouring villages, however—especially those on declivities—the destruction was great. The photograph

[1] An account of my experiences was published in *The Times* of Sept. 20, 1926. On June 28 I had already sent them a short report of the effects of the earthquake at Candia and in the surrounding country, including an estimate of the damage wrought in the Museum.

(Fig. 182), indeed, taken by me in a street of the village of Voutes, South-West of Candia—which had also suffered so much from the earthquake of seventy years ago—gives a good idea of the havoc wrought. In the town of Candia itself the damage was proportionately less and not more than fifty houses could be described as actually reduced to ruins, though two or three hundred suffered partial destruction, and many more were left in a dangerous condition from the rifts in their walls. Great destruction in villages.

FIG. 182. VIEW IN STREET OF VOUTES AFTER EARTHQUAKE OF 1926 (FROM PHOTOGRAPH BY A. E.)

As on former occasions, almost the whole population, including crowds of wailing women, poured out of the city gates and continued for weeks to camp in the open as best they could. Happily, owing to the early hour and the bright moonlight, the inhabitants were almost all up and about, and the casualties were therefore very slight.

The fabric of the Cretan Museum, containing the principal objects derived from the excavations at Knossos and elsewhere,—which in spite of the protests of the local Ephors had been built without any reference to the local conditions—suffered considerable injury. Some of the smaller relics, such as the beautiful little coloured relief known as the 'Jewel Fresco',[1] were completely pulverized, but, considering the amount of debris that was precipitated from the roof and ceilings, the damage done to the contents was almost miraculously small.[2] Damage to Museum.

[1] *P. of M.*, i, pp. 525, 526, and Fig. 383; see also p. 312, Fig. 231.

[2] The 'Saffron Gatherer Fresco' (*P. of M.*, i, p. 265 and Coloured Plate IV), which was broken up, can be put together again, as also a large fresco panel from Hagia Triada (itself a good deal burnt). The faïence figures of the Snake Goddess and her Votary had been simply broken in half and were easily put together.

Most of the breakages were found capable of being repaired, and a fortunate result of the catastrophe has been that it has stirred the Government at Athens to build a gallery constructed as far as possible to be earthquake proof.

Course and Range of Earthquake of 1926.

Course and epicentre similar to Earthquake of 1856.

The course and the range of the earthquake of 1926 seem to have almost exactly corresponded with that of 1856, as well as with the lesser shocks experienced in 1922 and the following years. It extended across the Central Mediterranean basin from Malta and Southern Italy to Rhodes, where it was severely felt. The records taken at the Athens Observatory, supplemented by reports from various Aegean stations, pointed to an epicentre 26·5° East, 35·8° N., the distance from Athens being as in the former cases 280 kilometres—about half-way, that is, between Santorin and Crete—and the depth about 2,000 metres. As in the case of the earthquake of 1856, the disturbance also extended to Lower Egypt, and, though less intense on this side, provoked a panic among the inhabitants at Alexandria, Cairo, Port Said, and other places.[1] A slight offshoot of the seismic movement was also, as on other occasions, noted along the Western part of the Morea and of Northern Greece to Corfu.

Constant Liability of Knossos District to Earthquake Shocks explains Successive Destructions of Palace.

The evidence of the great earthquake of 1856 and of that which has recently occurred, as well as the information, so far as it has been possible to collect it, regarding intermediate disturbances, points to the extension of the disturbance along a line running from Malta and Southern Italy to Crete and Rhodes, with radiations to Western Greece and Lower Egypt. A zone of instability in the Earth's crust seems to run along the Mediterranean basin in connexion with this Aegean centre, and, if we may regard this as a more or less fixed condition through recent geological times, it would follow that Minoan Crete had been subject to precisely the same recurrent seismic catastrophes as have convulsed it in classical, medieval, and modern times. But the archaeological *sequitur* of this is very important. When, in the great Palace of Knossos, we find evidence of a series of overthrows, some

[1] According to *The Times* Correspondent at Cairo (June 27, 1926) the earthquake occurred there at 9 hrs. 48 min. 27 secs.—slightly later, that is, than in Crete. The shock was sufficiently severe to put the seismograph at Helwan Observatory out of action. In the case of the 1856 earthquake minarets were overthrown in Cairo.

of them on a scale that could hardly be the work of man, there seems real reason for tracing the cause to the same seismic agencies that we have certainly to deal with in the case described above.

Ida, a barrier.

In the present case the Cretan region principally affected centres in the district in which Candia and the site of the ancient Knossos lie. South of the watershed, where Phaestos and Gortyna are situated, very slight shocks were perceptible, and the villagers on that side have the saying 'Ida protects us'. On the Northern Coast, again, West of the spurs of Ida, very little movement was felt either at Rethymnos or at Canea. It would appear that the superficial strata in these directions are less adapted for the transmission of seismic shocks from below. This, too, is a permanent condition, and is confirmed, as already noted, by the far greater relative preservation of Venetian monuments in both these Western towns. That in certain cases the severity of earthquake shocks has extended over the whole Island is clear. It looks, for instance, as if a great overthrow, due to the same cause, had befallen Phaestos, South of the watershed, as well as Knossos, to the North, about the end of the Second Middle Minoan Period.[1] But the balance of destruction clearly inclines to the Northern district of Central Crete. There are, as has been shown in the preceding Section, cumulative indications that the Palace of Knossos, rebuilt at the beginning of the Third Middle Minoan Period after the catastrophe above referred to, was to a great extent destroyed by a great earthquake towards the close of that epoch. On the other hand, the Palace at Phaestos, which was also rebuilt at approximately the same date, maintained its structural continuity well into the First Late Minoan Period. The exceptionally grandiose features that it presents are indeed largely due to this immunity from the intermediate destruction.

Knossos more liable to earthquakes than Phaestos.

Importance of seismic factor in history of Minoan Knossos.

According to the medieval and modern records, nine specially destructive earthquakes took place in Crete in six centuries and a half.[2] That space of time almost exactly corresponds with the duration of the great Minoan Palace in its successive phases, and we are almost bound to infer that the same natural forces must largely account for the signs of ruin that here mark successive stages of the building. The theoretic probabilities, great as they are, might not in themselves have justified their practical application. But when we find, as in the cases already mentioned, a series of phenomena pointing the same way and including direct proofs of seismic action, it becomes clear that this element must be taken into much greater account in

[1] See *P. of M.*, i, p. 258, and pp. 299, 315. 316.

[2] See above, p. 313.

the history of the archaeological remains on this site than might *a priori* have been assumed.

Chief breaks in continuity of building ascribed to this cause.

The evidence now before us may, indeed, be taken to justify the conclusion that probably in all cases the chief breaks in continuity visible in the building were less due to the work of Man than to the repeated devastations wrought by these cataclysmic forces of Nature, here always latent. The cutting short—after apparently a very brief interval—of the proto-palatial phase which synchronizes with the Palace of Mallia may be one of these phenomena. It is in any case difficult to attribute to purely human agency the colossal overthrow that at Knossos cut short the succeeding stage of the Palace about the end of the Second Middle Minoan Period, and this itself was preceded by a minor dislocation that there marks the close of the M. M. II *a* ceramic style, and secured the earthing under of its exquisite egg-shell ware.[1] Sufficient evidence has been given above of another major catastrophe—clearly the result of a great earthquake—that occurred during the terminal phase of M. M. III, and in this case again it was preceded by a lesser but still well-marked disturbance, to which is due the stratifying of earlier remains of this Period, well illustrated by a series of M. M. III *a* deposits, including those of the Northern Lustral Basin and Initiatory Area.[2] The many evidences, especially in the Town area of Knossos, of widespread ruin supplied by stratified deposits containing pottery of the mature L. M. I *a* class suggest the results of similar seismic catastrophe. How far the final overthrow of the Palace at Knossos, at least as a residence of Priest-Kings, may have been due to the same physical causes, is itself a fair subject for speculation.[3] It may be observed that at Candia and elsewhere the ruin that an earthquake has wrought has been followed at times by a wide conflagration.

[1] For the stratification of the Royal Pottery Stores see *P. of M.*, i, pp. 240, 241.

[2] *P. of M.*, i, p. 411 seqq., and for parallel M. M. III *a* deposits compare p. 319 seqq. and the section of the Loom-Weight Basements, *ib.*, p. 369 seqq. and, above, Fig. 187, *b*, and p. 589, Fig. 432. See, too, the evidence supplied by the M. M. III *a* basements N.W. of the Palace excavated in 1926 (p. 369 seqq., below).

[3] Assuming that in all the above cases the destruction of which we have evidence in the successive stages of the Palace was due to seismic action, the following rough chronological list of early earthquakes at Knossos may be drawn up.

c. 2100 B. C. (end of M. M. I *a*). Severe.
c. 1890 B. C. (end of M. M. II *a*: see above, p. 214 seqq.).
c. 1750 B. C. (end of M. M. II *b*). Severe.
c. 1650 B. C. (end of M. M. III *a*).
c. 1570 B. C. (towards end of M. M. III *b*). Severe.
c. 1500 B. C. (end of L. M. I *a*).
c. 1400 B. C. (end of Palace Period—L. M. II). Severe.

It must be understood that these dates are approximate and provisional.

Political effect of earthquakes.

Nor can the possibility be ignored that these great natural convulsions had political consequences, and that they may have been productive of the uprising of depressed elements in the population, or of a change of dynasty. An actual example, indeed, of such a result is supplied by the records of a great earthquake that took place in 1304, in the early days of Venetian dominion, the violence of which was such that it destroyed a great part of the city walls. It was followed by an insurrectionary movement among the subject Greek population of the Island, which was checked, however, by the prudent counsels of Alexios Calergos.[1]

The settlement of poorer denizens in the remains of the Great Palace at Knossos, when it had ceased to be a residence of the Priest-Kings, and in particular the parcelling out of the large hall of the Little Palace into small compartments had long since suggested to me a possible connexion between the crowning catastrophe on the site and an insurgent movement among the common people. Such phenomena, indeed, as the intrusion into a sanctuary of the Little Palace of grotesque fetish forms, due to natural concretions, in place of the beautiful faïence figurines of the refined Palace cult, sufficiently attest the coming to the fore of more primitive elements in the population. In view, however, of the cumulative evidence of seismic agencies on the site it seems probable that such an uprising was rather the sequel than the cause of the destruction of the Palace.

Impulse towards emigration.

Did the wholesale havoc wrought by earthquakes—again and again repeated at intervals of not more than one or two generations throughout a large part of Minoan Crete—provoke desertion and emigration? This tendency, indeed, is also historically illustrated on the occasion of the great earthquake at Candia of 1508, the first pre-occupation of the Venetian Duke being to prevent the inhabitants from deserting the city.[2] It might even be suggested that the feeling of insecurity thus induced, encouraged the process of overseas conquest which led to the wholesale colonization of Mainland Greece by men of Minoan stock.

Experiences of earthquakes at Candia

In any case, the personal records of the earthquakes that have devastated Candia and the region round in later days throw a real light on the similar catastrophes, long shrouded in the Night of Time, that had erstwhile

[1] *Creta Sacra*, p. 306. So, too, after the severe earthquake at Ragusa in 1667 the surrounding peasants ('Morlacchi') threw off the control of their masters and plundered the ruined city.

[2] Letter of Girolamo Donato, Duke of Crete, to Pietro Contarini (June, 1508) in *Fl. Cornelio, Creta Sacra*, ii, p. 411. 'Nihil in nobis praetermittitur: sed nunc in primis utile est continere quorum fieri posset civitatem in civitate, hoc est ne urbs deseratur.'

reflect those of Minoan Knossos.

befallen the Palace and Town of Minoan Knossos. Experiences such as those of the Venetian Duke of Candia on the occasion of the earthquake of 1508 may well have been shared three thousand years earlier by a Minoan Priest-King, escaping in the same way from his crumbling palace. A like overthrow on the Adriatic side suggests, indeed, more tragic eventualities. In the great earthquake that befell Ragusa in 1667, the fall of the upper part of the Palazzo Rettorile overwhelmed not only the Rector of the Republic himself, but about a third of the Senate, then assembling there for a meeting.[1]

Probable connexion with chthonic aspects of Minoan cult.

The symbols of protection offered by Religion in the one case, the bearing aloft of icons taken from the church walls, the elevation of the Host, the vows to a particular Saint or Holy Mother, had doubtless found their analogies in the older Cult on the occasion of similar catastrophes. It was to the great Minoan Goddess, wreathed with snakes as Lady of the Underworld, that her votaries naturally turned for protection against the petulant outbreaks of the infernal Power. The passage in the Latin Litany that prays for deliverance 'from the scourge of earthquakes' may well be a much more ancient inheritance in the Mediterranean regions.[2] Much, indeed, of the Minoan worship had a markedly chthonian character. Certain exceptional features, moreover, of Minoan religious architecture seem to be best explained by the constant need of propitiating the powers below. The sunken 'Lustral Basins', at times approached by a double flight of descending steps, like that to the North-West of the Palace (Fig. 184 at end of Section), and used, not for holding water, but for some ritual anointing, show a very clear terrestrial relation. Even more significant, perhaps, are the Pillar Crypts. The massive central pillars of these—out of all proportion to the size of the chambers—are only in a minor degree structurally needed as supports to ritual columns above.

Sunken Lustral Basins and Pillar Crypts.

To the examples of these already described belonging to the Palace of Knossos and the surrounding houses may now be added a similar crypt with even more massive pillars brought to light in the recently excavated West Wing of the Palace at Mallia[3] (Fig. 183). The blocks of one pillar

[1] F. M. Appendini, *Notizie sulle Antichità, Storia e Letteratura de' Ragusei*, vol. i (Ragusa, 1802), p. 321 seqq.

[2] It is a curious commentary on the difference in physical conditions of the British Islands and their general immunity from earthquakes that (as noted by Father Ronald Knox, *Evening Standard*, Sept. 7, 1926: *These Earthquakes*) the passage in the Latin Litany, *a flagello terraemotus libera nos Domine*, was cut out by the Reformers from the English Litany of the Prayer Book, while the appeals for deliverance from plague and famine and other ills were maintained.

[3] The pillar room here was partly excavated by Dr. Joseph Hatzidakis, the Cretan Ephor,

are incised with the double-axe sign, those of the other with the trident. The recurrence here, as in the former instances mentioned, of the double-axe sign again marks the connexions with the Central Palace Cult of Knossos, otherwise illustrated by the appearance beside the pillars of the pyramidal stone

FIG. 183. PILLAR CRYPT OF EARLY PALACE AT MALLIA.

sockets for the sacred weapon.[1] Of great significance, moreover, was a late example of a small leaden image of the Snake Goddess herself, found in the S.W. Pillar Crypt of the Little Palace. (See p. 540, Fig. 344, below.)

These Pillar Crypts seem to have been in all cases windowless and dark, and were lit by lamps, of which a fine specimen in red gypsum was

and completed by the French Mission. Fig. 183 is due to a photograph kindly supplied by Monsieur F. Chapouthier.

[1] *P. of M.*, i, pp. 427, 428, and Fig. 307. A pyramidal axe-stand was also found by the pillar in the South House (see below, p. 389, Fig. 223).

found in that belonging to the South-East House. The pillar room in that case was in communication with a natural swallow-hole in the soft rock, leading down to an artificial cave.

Pillar cult of Goddess as the 'Stablisher'.

In these massive pillars, standing in the middle of dark, mysterious chambers, themselves of small dimensions, associated with the special emblem of Minoan divinity and with the Goddess herself in her infernal guise, may we not recognize a natural outcome of the old Cretan Religion, which had its origin in the constant need of warding off the danger from below in this earthquake-stricken land? The baetylic 'Pillars of the House' into which the Goddess herself, when approached by due invocations and offerings, could infuse her spiritual being, were surely dedicated to her in her special quality of 'Stablisher'.

Sacrifice of bulls.

That the sacrifice of bulls entered into this form of worship is made probable by several indications. We have seen that in the room of the M. M. III house, flanking that actually overwhelmed by blocks flung from the Palace wall, tripod altars and the heads of sacrificed oxen had been placed on the floor previous to the ceremonial filling in of the ruined homestead. The connexion of bull sacrifice with the divinity of the Double Axes seems itself to be established by the scene of worship depicted on the Hagia Triada sarcophagus. There the red libations poured between the double axes find their complement in the votary bearing the small figure of a bull, in the characteristic flying gallop of the animals that course round the ring in the sacred shows. On the other hand, some remarkable features observable in the well-preserved Pillar Crypt of the Royal Villa[1] seem to be best explained by animal sacrifice on the floor of the chamber.

The Earth-shaker as a bull in popular belief.

The delight of the Earth-shaker in bulls, referred to in the Homeric passage,[2] may itself find a reasonable explanation in the widespread idea which recurs in the folk-lore of many peoples, that earthquakes are produced by some huge beast beneath the Earth. Sometimes, as in Japan, it is a monstrous fish, sometimes an elephant or other animal of prodigious size, but, amongst all of these, the bull is the most natural agent. According to the Moslems of Tashkend,[3] Almighty God set to support the Earth a bull of such monstrous size that from his head to the end of his tail was five hundred years' journey, and the space between his two horns another two hundred. The bull, thus heavily laden, prompted by the Devil, shook his head and tried to throw the Earth off him with his horns. Thereat, a midge was sent to sting

[1] See below, p. 406 seqq. and Fig. 235.

[2] *Iliad* xx. v. 403 seqq.

[3] See an extract from a Tashkend paper of which a translation is given in the *Zeitschrift für Ethnologie* (Berlin, 1892), pp. 537, 538.

him in the nostril, and he set up a mighty bellowing, so that he is known unto this day as 'the bellower'.

To one who has experienced the tossing and listened to the muffled roaring from below, this popular explanation of earthquakes seems natural enough, and it may well have affected the primitive religion of Minoan Crete.

FIG. 184. SUNKEN LUSTRAL BASIN OF THE NORTH-WEST PALACE AREA.

§ 47. South-East Palace Angle and Adjacent Shrine of the Double Axes.

Staircase of S.E. Palace Angle; Column-bases and Central Wall; Cement-paved Light-area—Minoan Tarazza; *Exedra beneath Landing; Approach to S.E. Stairs from South Corridor; Raising and reconstituting of fallen structures; S.E. Palace Angle left derelict after Earthquake; 'Insula' North of it, continuously occupied; 'Corridor of Sword Tablets'; S.E. Lustral Basin; Shrine of the Double Axes; Offertory vessels in surrounding area; Survival of Old Palace Cult; Earlier relics found in collapsed cavity—high relief of Lion in painted stucco; Lion Guardians of Minoan Goddess, later identified with Rhea; Tripod altars of earlier Cult; Socketed base of Double Axe; Later Shrine preserves earlier tradition—its successive floor-levels; The 'Reoccupation' Shrine of the Double Axes; Altar ledge with Cult objects; 'Dove Goddess' and male votary; The two Handmaidens of the Goddess—'ΔΙΑΣΚΟΥΡΑΙ'; Parallel examples on signet types; Female image of crude primitive type; Shrine of the Double Axes revival of old Palace Cult; Later Cult of Spring-Chamber compared; Goddess in hut-urn there, Sub-Minoan; Proto-Geometric Stage of Spring-Chamber not found in Double Axe Shrine; Submergence of Shrine marks sudden end of 'Reoccupation'; Was it due to Mainland incursion? Discovery of leaden sling bullets among votive relics; Prototypes of Greek specimens from Knossos; No evidence of Minoan use of Slings; Were the bullets shot by Achaean marauders? Period of Sea Raids—precedes Conquest.*

Staircase of S.E. Palace Angle.

The rectangular space forming the South-East Palace Angle had been long recognized as the almost inevitable site of a staircase eventually supplying access to the upper halls of the Domestic Quarter from the Southern approaches to the building. The Western extension of the South Corridor formed a natural link of connexion both with the South Porch and with the other more important entrance that we now know to have existed at the South-West corner of the Palace and to which the Stepped Portico led.

The evident traces of a more or less central wall-line within this rectangular area itself suggested the former existence of a staircase with two flights within it.[1] But the clear evidence that has since accumulated as the

[1] This indeed is suggested in the Diagrammatic Plan of the Palace, *P. of M.*, i, facing p. 203.

result of the very complete overhauling of the structural remains shows that there was in fact only one flight of stairs occupying the left wing of the enclosure, the space South of this having been certainly a light-area, with the usual cement paving of such open spaces.

To be able to explore the subterranean vault below, it had been found necessary, as already stated, to raise and temporarily remove, in the order in which they lay, the sunken blocks of the central wall-line within this structural enclosure. Two interesting new facts thus emerged. Under a fallen gypsum block at the West end of this line a limestone column-base came to light, while another similar base was found near the wall at its East extremity. Forming the farther end of this central wall was a massive limestone block[1] finely incised with two small cruciform signs, and the fact that the outer end of this block was cut at right angles to its face, and not splayed back, showed that it had formed an exterior angle. Another block presented a gate sign, finely incised like the crosses, and the style of these marks—so strongly contrasting with the large deeply cut examples on the base-blocks of the outer walls of this area—leads to the conclusion that the staircase of which these elements have been preserved was not earlier than the Third Middle Minoan Period.

Column-bases and Central Wall.

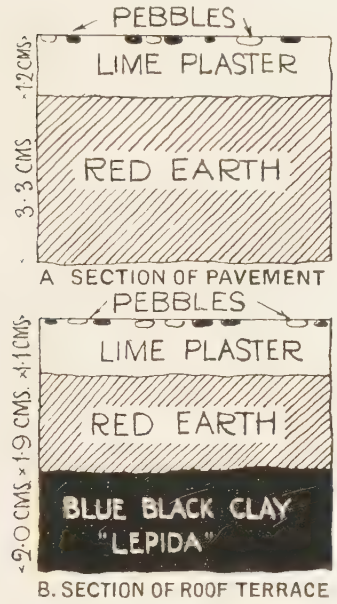


Fig. 185. Two Sections. Section A of Cement ('Tarazza') Floor of Light-area, S.E. Angle. Section B of Roof Terrace.

The good limestone construction on the outer side of this central wall section was itself an indication that an open space had separated it from the exterior South wall. That there was here a light area was conclusively shown by the discovery among the sunken remains on this side of the central line of structures of masses of the kind of concrete material known to the Cretans as *ταράζα*,[2] which was used for covering such spaces. The cement used for pavements, of which a section from this area is given in Fig. 185, A, is distinguished from that used for roof terraces by the absence of a foundation, formed of a particular kind of impermeable clay, found necessary in the latter case. It will be seen that there was here an upper

Cement-paved Light-Area. Minoan *Tarazza*.

[1] The block was 1·89 metres long by 70 cm. high and 70 cm. deep.

[2] The same word as the Italian *terrazzo*, from which the English *terrace* is derived.

coating, somewhat over a centimetre thick, of lime plaster with small pebbles embedded in its surface, while below was a thicker layer of red earth, such as that extracted from the subterranean pit. Beside this is placed for comparison a typical section (Fig. 185, B) of roof-terrace cement taken from one of the contemporary submerged houses. In this case, it will be seen, there is the same succession of pebbled lime-plaster and red earth above, but backed below by a layer of a blue-black clay 2 centimetres thick. This clay, known as λεπίδα, which crops up on the opposite hill-sides East and South of the Palace and is common in many Cretan localities, is still in great request throughout the Island for the flat roofs of houses, owing to its impermeable quality.[1]

Taken in connexion with the discovery of a gypsum stair-block at the West end of the corresponding 'wall-section' on the left side of two parts of one or more gypsum steps, there could be no remaining doubt that the central wall-line had supported a flight of stairs running up East, and which received its light from the open paved area that bordered it on the South. The preserved remains indicated steps with a tread of 16 cm. and the same rise, giving sixteen steps to the landing. As this landing was 1·80 metres below the fourth landing of the Grand Staircase of the Domestic Quarter, eleven further steps were necessary to reach that level.

The discovery of the column-base between the West end of the Northern staircase wall and the exterior line on that side and of another by the Eastern outer wall gave a good warrant for a restoration of the very elegant system shown in the Plan, Fig. 186, and the photographic Fig. 187. A column stood in the middle of the entrance to the light-well, and another in a symmetrical position at the opening of a small alcove or *exedra* under the landing, very probably provided with stone benches. The height of the landing, 2·56 m., would have given sufficient headway into this.

Exedra beneath Landing.

Approach to S.E. stairs from S. Corridor.

The entrance lobby of the South-East Staircase area is 1·20 m. below the level of the Western extension of the South Corridor, and must have been approached on that side by eight descending steps. Its doorway has not been preserved, but on the North side of the staircase lobby the central jamb has remained *in situ* of a double doorway communicating with the ground floor of the section of the building beyond.

The resetting, in the original position from which they had sunk, of the staircase blocks that had been temporarily removed, and at the same time providing a secure basis both for these and for the adjoining structures, including the massive South Wall, was one of the most difficult and laborious

[1] It is also used by the modern Cretan potters for their pottery blended with red earth.

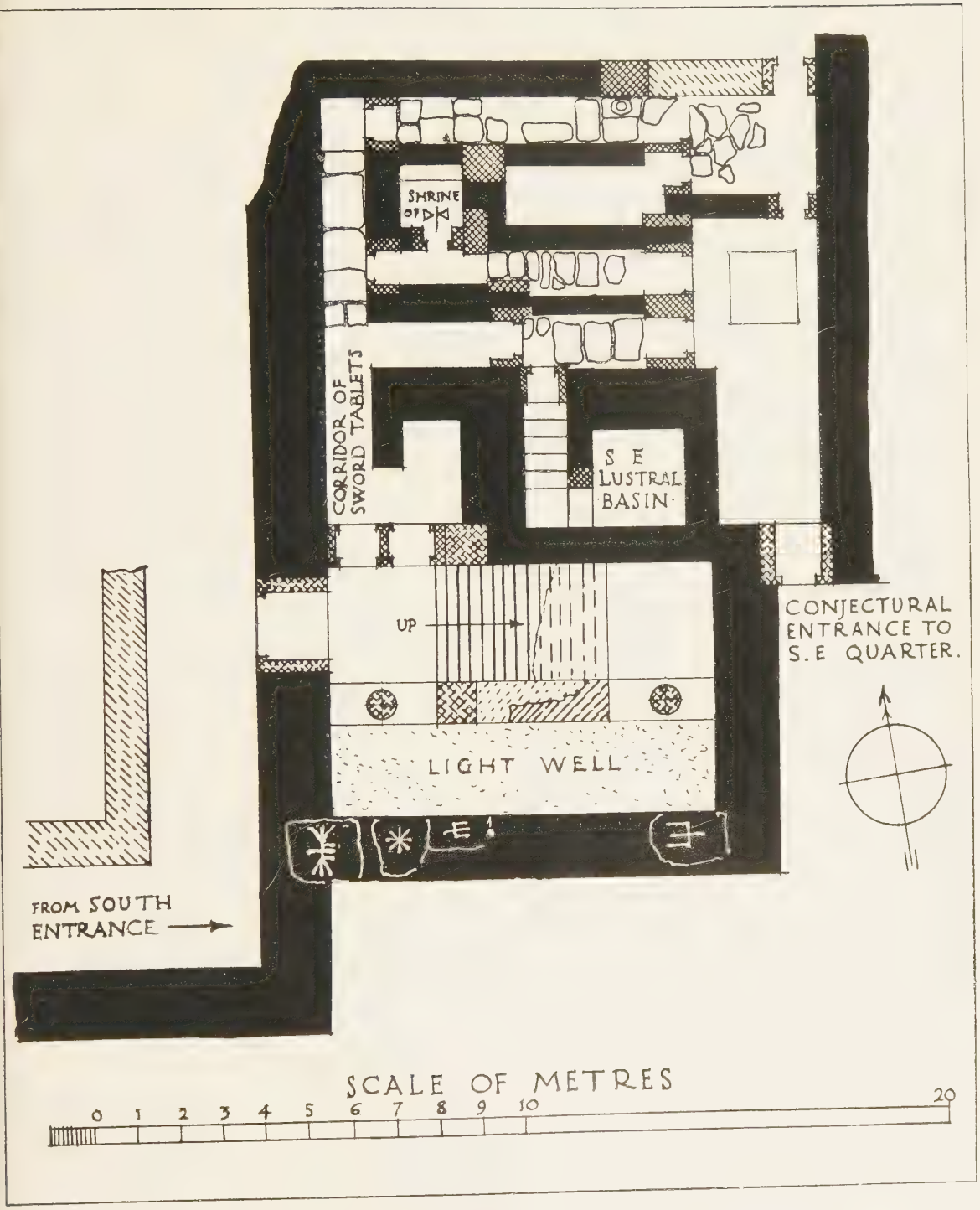

SHRINE OF DK
CORRIDOR OF SWORD TABLETS
S E LUSTRAL BASIN
UP
LIGHT WELL
CONJECTURAL ENTRANCE TO S.E QUARTER.
FROM SOUTH ENTRANCE
SCALE OF METRES
0 1 2 3 4 5 6 7 8 9 10 20

FIG. 186. PLAN OF SOUTH-EAST PALACE ANGLE.

Raising and reconstituting of fallen structures.

tasks encountered in the whole history of the Excavation. Yet drastic measures had here to be taken since, owing to the opening out of the collapsed cavity, the still intact wall that supported the Northern border of the adjoining *insula*, including its Lustral Basin, showed signs of giving

FIG. 187. STAIRS AND LIGHT-AREA OF SOUTH-EAST PALACE ANGLE: RESTORED.

way. The first attempt was not successful, and it was only by building up strongly cemented piers and wall-foundations from the rock floor of the collapsed vault, in places some 25 feet below, that, with all the resources of reinforced concrete, stability was at last achieved.

The overthrow of this angle of the building had been so complete, and the subsidence of its remains, owing to the existence of the abyss below,

was so threatening that it is clear that no attempt was made to restore it in the ensuing epoch, great as were the building activities of that time. The limits of the L. M. I Palace were here contracted, as along so much of its Southern border.

S.E. Palace Angle left derelict after earthquake.

The seismic overthrow that had so effectually cut short the existence of the South-East Staircase area had not affected the adjoining Palace *insula* North of it to the same extent. The cutting in the hill-side—from this point gradually increasing in depth—had here, as throughout the Domestic Quarter beyond, done much to hold up the adjacent structures. The area immediately beyond this to the North, containing the 'Magazines of the Lily Vases', had indeed been filled in to support a staircase running down the East Slope from the Central Court. But in the section to which the double door from the S.E. Staircase lobby gave entrance, habitation seems, at least during the earliest phase of the Late Minoan Period, to have gone on at the same level. On or near the floor-level of the adjoining Corridor pottery occurred of that epoch, including a high-spouted ewer with typical spiraliform decoration like that of a 'rhyton' found in the Second Shaft Grave at Mycenae.[1] At the same time the discovery at a somewhat higher level, and apparently fallen from an upper Chamber, of clay seals inscribed in the Linear Script B and of a series of contemporary tablets with pictorial figures of swords, shows that this Corridor was open down to the end of the Palace Period.[2] From these finds it has received the name of 'Corridor of the Sword Tablets'.

Insula N. of Staircase Angle.

Continuously occupied.

'Corridor of Sword Tablets.'

The structural arrangements of the M. M. III Palace seem indeed to have been preserved throughout this section, including in its South-East corner the remains of a small Lustral Basin, 2·20 by 2 metres square, lined and paved as usual with gypsum slabs. Five steps led down to it, flanked by a short balustrade, and within it was found what seems to have been a clay oil-flask for some form of ritual anointment of much the same shape and coarse fabric as those that came to light in the large Lustral Basin to the North of the Palace,[3] and, again, in that of the South House.[4]

S.E. Lustral Basin.

[1] See A. E., *Knossos, Report*, 1902, p. 95.

[2] From the leaf-shaped form of some of the blades, I was led (*Scripta Minoa*, i, p. 55, Fig. 30) to make the suggestion that these tablets might have belonged to a distinctly later time than the close of the Palace Period. In view of the parallelism of the script on these and the clay sealings I do not think that this suggestion can be maintained.

[3] *P. of M.*, i, p. 407, Fig. 292.

[4] See below, p. 379.

Survival of Old Palace Cult of the Double Axes.

Shrine of Double Axes.

But a discovery made in a little chamber at the North-West angle of this *Insula* of the building, though connected with a later period, has supplied a much more complete illustration of the religion of the spot. Here, above a deposit of from 25 to 30 centimetres that separated it from the original M. M. III floor-level, were uncovered during the excavations of 1902[1] the undisturbed remains of the small 'Shrine of the Double Axes', with its cult objects and ritual furniture practically complete, belonging to the time—L. M. III *b*—when the Great Palace had been partially reoccupied by later squatters.

Offertory vessels in surrounding area.

The popularity of this centre of worship at that time is illustrated by the abundant deposits of offertory cups of the low 'champagne glass' type and other contemporary vessels throughout the whole of the surrounding area, extending in one direction as far as the Southern borders and staircase of the Queen's Megaron and over the neighbouring *Καφενεῖον*. Numbers of these, as we have seen, had also made their way into the subterranean vault described above, while others occurred in a superficial stratum above the neighbouring submerged M. M. III houses.

Survival of Old Palace Cult.

Details of the 'Shrine of the Double Axes', given below, afford evidence that we have here a late illustration of a cult that goes back to the earliest stage of the Palace-Sanctuary itself, and in fact forms its central theme. Certain objects found on the Northern borders of the neighbouring vault have now confirmed the presumption that the later shrine represents the local survival of a similar form of cult that already had had a habitat in this Palace *insula* from its Middle Minoan stage. It was one, indeed, of a series of such cult centres, of which we have traces in several quarters of the Palace—in the Domestic Quarter, for instance, by the South Propylaeum, behind the 'Room of the Throne', at the South-West corner of the Northern Entrance passage, and, in a principal degree, in the region marked by the Pillar Crypts. On the neighbouring façade of the Central Court the actual plan of a small columnar shrine can be made out.[2]

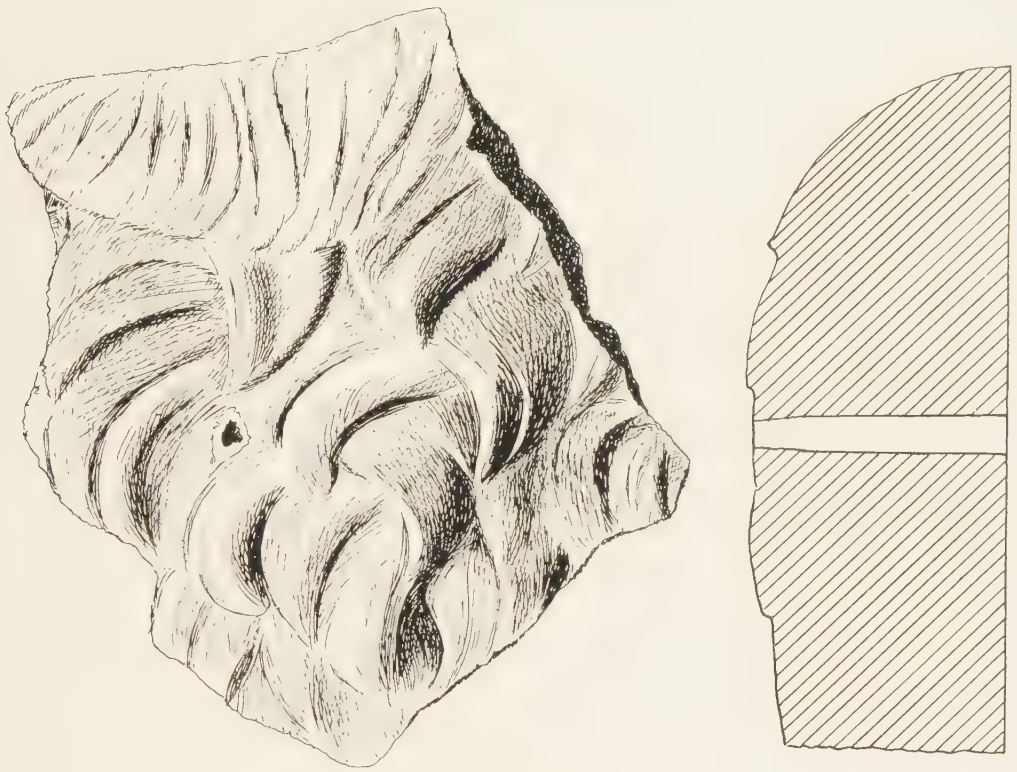
Earlier relics found in pit: high relief of Lion.

Among the remains that had worked themselves down into the artificial vault underlying the South-East Staircase system on the side bordering that of the little Shrine of the Double Axes, there occurred some very suggestive relics. About 5 metres down were found two fragments of a painted stucco figure of a lion in high relief. The larger of these (Fig. 188, *a*, *b*), showing

[1] See A. E., *Knossos, Report*, 1902, p. 95 seqq.

[2] See below, § 66.

part of the neck and mane, is executed in a bold free style, and shows on its upper surface clear traces of red colouring. It belongs to a class of painted stucco reliefs that were already in vogue at Knossos in the early part of M. M. III. A particular feature that it presents, moreover, supports this dating. A quadrangular perforation, stopped with plaster above, runs



a *b*

FIG. 188. *a*, FRAGMENT OF STUCCO RELIEF OF LION'S NECK AND MANE WITH TRACES OF RED PAINT; *b*, SECTION SHOWING PERFORATION FOR PIN. ($\frac{1}{2}$)

through its centre, designed for a wooden peg by which it had been attached to the background, a method also adopted in the case of the M. M. III *a* frescoes that decorated what was afterwards the 'Corridor of the Procession' in its earlier shape.[1] Near this fragment was a small piece of the lion's leg in similar material and relief.

These fragments of the lion relief have a special religious significance

[1] See below, p. 680 seqq. These frescoes resembled in style and design the 'Ladies in Blue' derived from what seems to have been the great hall on the Eastern side of the Palace (see *P. of M.*, i, p. 545, Fig. 397, and p. 546).

Lion Guardians of Minoan Goddess.

since we know from the seal-impressions of the Central Palace Shrine and from other examples that they were the constant guardians and supporters of the great Minoan Goddess. On the 'Ring of Nestor' we see the lion guardian of the Underworld tended by the two little handmaidens of the Goddess (Fig. 289, p. 482, cf. p. 341). Her worship, indeed, as a Lion-Goddess under the form of the Greek Rhea, continued on the site[1] when all else of the traditions of the great Palace Sanctuary had been lost. The 'Antithetic' scheme such as that of the Lions' Gate,—in which the column between the two lions represents the baetylic form of the divinity—seems to belong to a somewhat later date.

Later identified with Rhea.

It is clear, at any rate, that a high relief like this on a life-size scale could not have belonged to the small-roomed basement, but must have been derived from an upper story. It suggests the conclusion that it formed part of some upper ceremonial hall in this Palace area as it existed in the period immediately preceding the great earthquake to which its precipitation was doubtless due. Some ritual relics found in the adjoining pit may either belong to that epoch or to the immediately succeeding period of restoration. Among these were fragments of painted tripod altars with horizontally banded decoration like those found in the House of the Sacrificed Oxen,[2] or the similar examples described above, which were stored in the 'propaganda' building at Niru Khani.[3] But the form was essentially the same as the plain tripod altar found in position in the later Shrine of the Double Axes.

Tripod altars of earlier Cult.

Socketed base of double axe.

Of great interest, also, as carrying back the cult in the same area, was the further discovery—partly resting on the floor of the vault near its North border—of a socketed stand for a sacral double axe of the kind so well illustrated among Minoan remains in the Palace.[4] It was of gypsum, a good deal disintegrated by the action of water, but still showed the stepped pyramidal form such as is reproduced, together with its painted decoration and with the sacred weapon inserted, on the Hagia Triada sarcophagus.

L. M. II painted amphoras.

We must also regard as having been derived from some upper room of this *insula* several fragments of large painted amphoras in the later 'Palace style' (L. M. II), one of them showing a pattern identical with that of a bath tub found in the bath-room adjoining the Queen's Megaron,[5] and belonging to the close of that Period (L. M. II *b*).[6] It will be shown below that, in the

[1] Cf. Diodorus, lib. v, c. 66. The ruins of a temple and sacred grove of Rhea were pointed out on the site of Knossos. Cf. p. 7 above.

[2] See above, p. 302, Fig. 175.

[3] See below, p. 443, Fig. 260.

[4] *P. of M.*, i, p. 437, Fig. 314, and p. 438, Fig. 315.

[5] See vol. iii.

[6] The rim of another amphora showed lily-

case of similar amphoras derived from a ceremonial hall looking on the West Court, their ritual connexion was in several cases indicated by the recurrence of the double-axe motive.

Later shrine preserves earlier tradition.

It looks, therefore, as if the specially religious character of this *insula*, so well marked in its M. M. III stage by the Lustral Basin, had been maintained down to the last days of the Palace, to be once more revived by the later settlers. It is probable indeed that from the days of the original structure onwards some little shrine existed in the cell where the late Shrine of the Double Axes came to light.

Discovery of Late Shrine of Double Axes.

Its successive floor-levels.

The floor of this later *sacellum* was somewhat higher than the gypsum jambs of the M. M. III doorway, and from 25 to 30 centimetres above the original level. Supplementary investigations undertaken in 1923 brought out traces of an intermediate pavement of gypsum slabs, some 10 centimetres above the M. M. III floor, together with fragments of the black-coloured base of a painted dado, of which an example belonging to the last M. M. III phase was afterwards supplied by the 'House of the Frescoes'.[1] This points to a careful restoration of this space at the time of the great rebuilding after the earthquake, and it may well have been continuously in use down to the close of the Palace period, the date, as we have seen, of the last amphoras belonging to this section of the building.

The indications at present afforded, that the cult of the Double Axe and its patron divinity had already existed on the spot, and that the little shrine had had a continuous history till at least the date of the fall of the Late Minoan Palace, lend additional importance to the revelation, due to the excavations of 1902, of the shrine as it existed in the period of Reoccupation.[2] We may reasonably infer, indeed, that the character and arrangement of the cult objects, so perfectly preserved *in situ*, perpetuated in their main lines the earlier tradition. We have here, in fact, the best retrospective evidence regarding the cult forms in vogue in the Palace itself, though its relics are of poor materials, and in a barbaric shape. For its

The 'Reoccupation' Shrine of Double Axes.

like sprays on the inner border and waved decoration on the outer. Another presented a pattern derived apparently from the imitative stone graining of contemporary frescoes (cf. *Tombs of Knossos*, *Archaeologia*, lix, Pl. C). In the same association occurred remains of some high-stemmed goblets also of late Palace fabric (L. M. II), the predecessors of the low 'champagne glass' type.

[1] See below, p. 443 and Fig. 260.

[2] A full account of this discovery was given by me in *Knossos*, *Report*, 1902 (*B.S.A.*, viii), p. 95 seqq., though the terminology there employed is necessarily somewhat antiquated.

pristine splendour we must look back to the artistic work of the Temple Repositories.

The small dimensions of the cell, a metre and a half square, correspond with what we know of other Late Minoan shrines, including the *cella* of the little Temple of the Miniature Frescoes,[1] and the reconstructed plan of that of the pillar shrine on the West border of the Central Court.[2]

The inner arrangement of the later Shrine of the Double Axes (Fig. 189) shows a triple division. The section by the entrance has a plain stamped floor, and on this, accompanied by a small store jar, jugs, and bowls, stood a 'stirrup vase' of L. M. III *b* type with a good glaze and a painted design of octopods, the tentacles of which formed a kind of waved maeander. Beyond this area, where stood the larger vessels of offering, was a slightly raised dais strewn with water-worn pebbles, in the centre of which, its feet embedded in the plaster floor, was a tripod altar, like those already described, with a plain stucco surface painted a dull white. On either side of this were some small jugs and low pedestalled one-handled 'champagne glass' cups (inset), fragments of which occurred so abundantly in the neighbouring recesses of the collapsed pit. The strewing of the floor with water-worn pebbles is itself, as already noted, a recurring characteristic of Minoan shrines, sea-shells, as we have seen, being used at other times for the same purpose.[3]

Altar ledge with cult objects.

Immediately behind this dais and tripod altar, a raised base of clay and rubble with a plaster facing ran from wall to wall, on which the cult objects were set, here too on a flooring of water-worn pebbles (see Plan and Section, Fig. 190). On either side stood 'sacral horns' formed of white coloured plaster over a clay core, showing round sockets for the insertion of the shafts of small double axes. The bronze blades of these had disappeared, but a probable record of their form was preserved in the shape of a miniature example in pale steatite found close to the horns on the left (Figs. 190, 191). Its reduplicated edges are a characteristic of ritual examples of the weapon, as seen, for instance, in the late Palace amphoras and the Hagia Triada sarcophagus, and the still later mould from Karydi in East Crete.[4]

Dove Goddess and male votary.

Beside the horns were placed five figurines of painted terra-cotta, in which we may recognize the divinity herself and her votaries. But the largest

[1] See below, p. 597, Fig. 381.

[2] See below, § 66.

[3] *P. of M.*, i, p. 517 seqq.

[4] Xanthudides, Ἐφ. Ἀρχ., 1900, p. 26 seqq., and Pl. i.

and most remarkable of these figures, 22 centimetres in height (Fig. 193, *a* 1, 2), is clearly the great Minoan Goddess herself, with her sacred dove perched on her head and her hands raised, one palm outwards, the other in profile, each crossed with a dark streak. She wears a kind of bodice with a laced slit behind and is richly bedecked with necklaces and armlets, while on either wrist

FIG. 189. SHRINE OF DOUBLE AXES, SHOWING SACRED OBJECTS ON ALTAR LEDGE AND OFFERTORY VESSELS ON FLOOR.

is seen a narrow circlet with a disk recalling that seen on the wrist of the Cup-bearer in the Palace fresco, where the indication of agate veins shows that it was intended to represent a lentoid bead-seal.[1] The human aspect of the figure ceases at the waist which rises from a cylindrical base. A similar image in which the upper part shows the Mother Goddess holding out a child has now occurred in a L. M. III *b* sepulchral deposit of a chamber tomb of the Mavro Spelio Cemetery, on the opposite steep of the Kairatos.[2]

[1] See below, p. 705, and Fig. below; from a L. M. III *b* deposit in a tomb at Mavro Spelio.

[2] See Suppl. Pl. XX, and cf. pp. 556, 557,

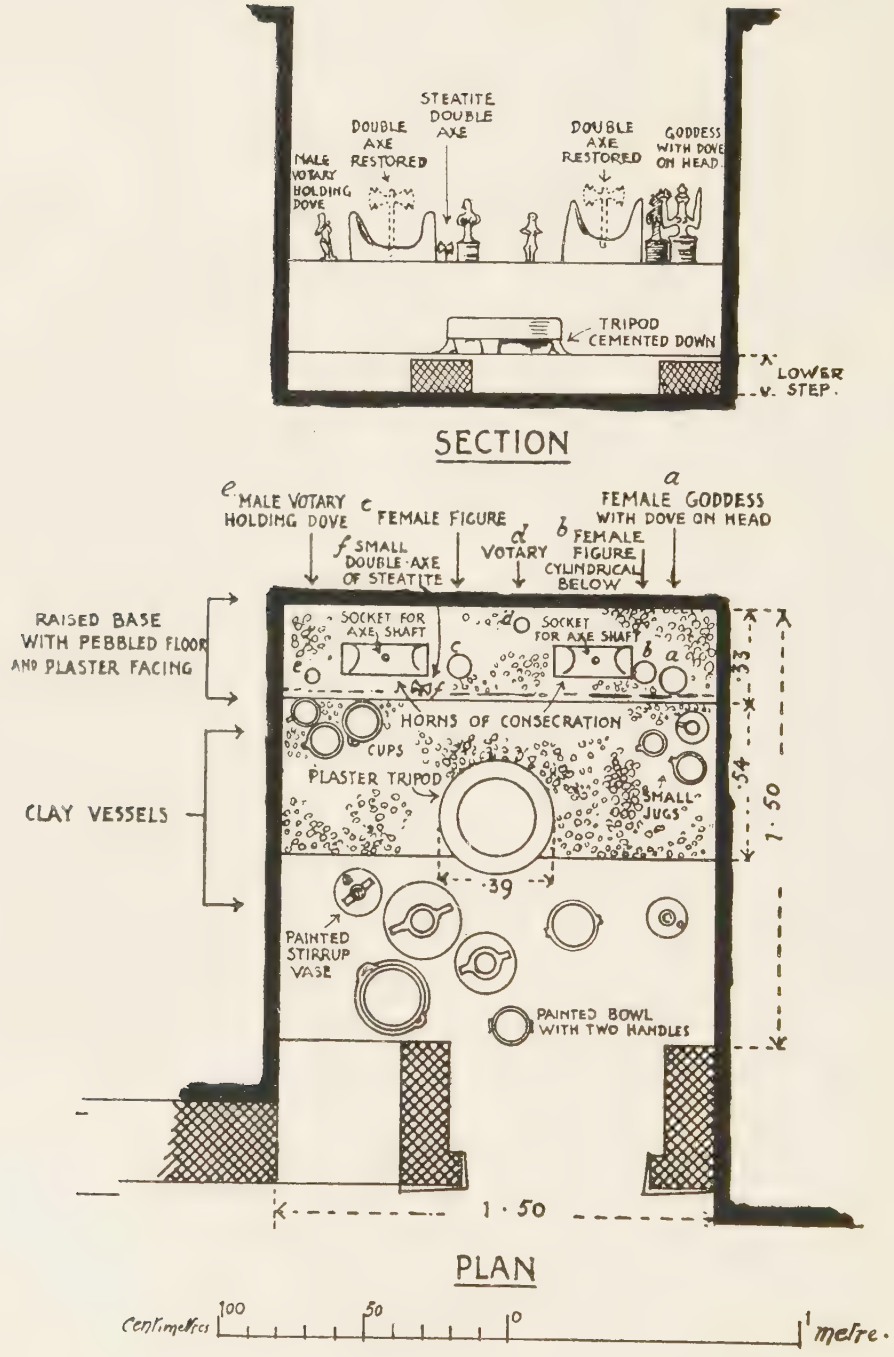


FIG. 190. PLAN AND SECTION OF SHRINE OF DOUBLE AXES.

A complement to the Dove Goddess is seen at the farther extremity of the ledge in a small image of a male votary holding out a dove with both arms,[1] the clay embodiment both of self-dedication and of offering. He stands on a small square base and his dress differs both from the known Late Minoan fashions and from the belted tunics at this time in vogue in Mycenaean Greece. He wears a sleeved jacket with a V-shaped slit in front and a broader opening laced together behind, coupled with loin-clothing of an abnormal aspect (Fig. 192).

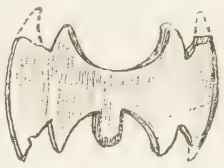


FIG. 191. MINIATURE DOUBLE AXE OF STEATITE FROM SHRINE.

Of smaller size than the Goddess, but clearly of a divine nature, since they too are only half anthropomorphic and rise from similar cylinders, are two more youthful female figures (Fig. 193, *b*, *c*).[2] Like the larger image they present a glazed painted surface, but the indications of the bodice are less distinguishable; one bears traces of a kind of fleur-de-lis on the back. Two long locks are visible in each case falling down the back of the head, which, in the case of the image on the right, Fig. 193, *c*, show dark spots and serpentine folds (Fig. 195). The indications are hardly sufficient for us to determine whether in this case there may be an allusion to the cult of the Goddess in her chthonic aspect. The dove on the head of the Goddess and in the hands of the male votary points to the celestial side of the worship, but the clear representation of snakes about a contemporary image of the same kind from the Gournià shrine[3] lends some probability to the view that the infernal side of the worship was also represented. For there, too, the cult was associated with doves,[4] and the Double Axe also occurred as a cult symbol.

The two Hand-Maidens of Goddess.

a *b* *c*

FIG. 192. MALE VOTARY HOLDING DOVE. SHRINE OF THE DOUBLE AXES.

[1] The figure is of solid clay, 13 cm. high, unglazed, but with reddish-brown colouring on a pale ochre.

[2] The height of these was about 17 cm. Unfortunately, the head of one is now wanting.

[3] Boyd-Hawes, *Gournià*, Pl. XI. 1.

[4] *Ib.*, Pl. XI. 3, 4.

Parallels to these.

There can be little doubt that the small female image, Figs. 193, *c*, and 195, with its head turned to its left, has been shifted from the position that it was designed to occupy on the right of the Dove Goddess balancing that which was found on her right (Fig. 193, *b*). The arrangement as shown in Fig. 193 answers, indeed, to a religious group in which the taller figure of the Goddess is seen with a handmaiden on either side, recurring examples of which appear on signet types from the last Middle

Fig 193. Dove Goddess and two Handmaidens; Shrine of Double Axes.

Minoan Period onwards.[1] Examples of this triple group are shown in Fig. 194, that on the seal-impression from Hagia Triada dating from the transitional M. M. III *b*–L. M. I *a* epoch. On the large signet-ring, again, from Mycenae we see once more the two little attendants beside the seated Goddess, one offering her flowers, the other plucking fruit for her from the sacred tree that overshadows her (Fig. 194, *e*). The children in this case are so small that they are only able to fulfil their tasks by standing on the top of rocky piles. On a more recently discovered ring from the Sepulchral Treasure of Thisbê (Fig. 194, *d*) we recognize another version of the same

[1] I first called attention to the recurrence of this triple group in Minoan iconography, in my *Ring of Nestor*, &c., p. 12 seqq. (*J. H. S.*, xlv (1925), Figs. 11–15), from which parallels here given are taken.

Fig. 194. Seal Designs showing Goddess with Two Girl Attendants; *a*, Seal-impression from Hagia Triada; *b*, Bead-seal, Pedeada; *c*, Bead-seal, Mycenae; *d*, Gold Signet-ring from Thisbê Treasure; *e*, Gold Signet-ring from Mycenae; *f*, Section of 'Ring of Nestor'.

group, the handmaidens in this case bearing poppy capsules to the Goddess seated on a high stool.[1] On the 'Ring of Nestor' they tend for her the lion guardian of the Underworld (Fig. 194, *f*).[2]

'ΔΙΑΣ-ΚΟΥΡΑΙ' of Minoan Dia.

The Minoan Dia was in fact associated with a youthful pair of *Διάσκουραι*, just as Zeus who succeeded to her position was attended by *Διόσκουροι*.[3]

The cult images of the Goddess and her attendants are of the fine glazed ware of the period and their conical bases [4] are decorated with bands and curves in the style of L. M. III *b* pottery. Very different is another female figure of the group, which, from its attitude, may originally have been placed on some kind of seat. From its crude style and fabric, its incised decoration with chalk inlay, and its half seated attitude with the arms folded over the breasts, this figure has a real claim to represent a primitive tradition, going far back into Neolithic times. As such it has already received illustration in the first volume of this work.[5] It is typical of an epoch marked, it would seem, by the coming to the fore of new and formerly down-trodden elements in the Cretan population, bringing with them a strange recrudescence in religious forms and ideas. A striking example of this is supplied by the late Shrine found in the Little Palace at Knossos with its grotesque fetishes consisting of natural concretions.[6] (See Fig. 198, p. 346.)

Female image of primitive type.

FIG. 195. BACK OF IMAGE (FIG. 193, *c*) SHOWING SNAKY LOCKS.

Shrine of Double Axes revival of old Palace cult.

The contents of the Shrine of the Double Axes still represent an unbroken insular tradition, and there is, as yet, no discernible trace of Mainland intrusion. In a degenerate shape, indeed, we still see before us the ritual objects of the old Palace cult, and new features, such as the cylindrical bases of the images, may themselves be regarded as the outgrowth of the bell-shaped skirts of the M. M. I *a* figures. Such composite images had at this epoch grown up in various parts of Crete, but there is no evidence of any close parallels in Mycenaean

[1] In this, as in other cases, there appears in addition to the girl ministrants an adult female companion who is more or less the double of the divinity. On the 'Ring of Nestor' the companion is seated opposite the Goddess in one compartment while the two children tend her sacred lion in another.

[2] See A. E., *Ring of Nestor, &c.*, pp. 65, 66, and Fig. 55.

[3] *Ib.*, p. 14.

[4] The cylinders are hollow, with small round openings in their bottoms.

[5] *P. of M.*, i, p. 52, Fig. 14. Unfortunately, this figure was afterwards stolen. Of the female image (Fig. 193, *b*) abstracted at the same time only the upper part was recovered.

[6] See, too, p. 520 below.

Greece. The exiguous dimensions of the sanctuary cell itself, the ledge supporting the cult objects, and the water-worn pebbles strewn for a pavement are recurring features in the Minoan shrines of Crete, while the use of sea-shells as flooring that appears as the equivalent for the latter feature in the Temple Repositories finds a parallel on Cretan soil as far back as the Neolithic Age.[1] We recall the Advent of the Goddess from the sea on the Mochlos signet and her departure by sea on another.[2]

Later cult of Spring-Chamber compared.

The revival by those who reoccupied this quarter at a time considerably later than the final destruction of the Palace of the ancient cult of the spot recalls that of which we have such abundant evidence in the Spring-Chamber by the 'Caravanserai'.[3] That in the latter case the spring itself had been originally sacred to the Goddess may be inferred from the later history of the little chamber. At a later epoch, when the basin itself was choked with debris, we see the structure that contained it used as a depository of votive offerings, attesting an unbroken religious tradition. Among these, too, one of the earliest, the miniature hut-urn with the Goddess,[4] shows a distinct parallelism with some of the relics from the Shrine of the Double Axes. In this case, too, the image belongs to the semi-anthropomorphic class, while the correspondence in detail extends not only to the uplifted hands, but the black patches on the palms and wrists, the latter, no doubt representing 'wrist-seals' as in the present case. On the other hand, the tentacle-like scrolls painted on the back of the vessel represent a slightly later degeneration of the conventionalized tentacles of the octopus design seen on the 'stirrup-vase' from the present shrine (Figs. 189, 190), and the 'triglyph' also suggests a somewhat later ceramic fashion. The hut-urn with the Goddess, in fact, while preserving some Minoan traditions, belongs to the transitional phase connecting it with the proto-geometrical stage.

Goddess in hut-urn 'Sub-Minoan'.

Proto-geometrical stage of Spring-Chamber not reached in Double Axe Shrine.

In the case of the Spring-Chamber, as we see by the character of the bulk of the offertory vessels, the religious tradition was handed on intact to the succeeding proto-Geometrical Age when the evidence of the intrusion of a Mainland element is clearly marked.[5] On the other hand the clay vessels of the Shrine of the Double Axes all belong to the closing phase of the

[1] See *P. of M.*, i, p. 37 and p. 521, and cf. Mosso, *Mon. Ant.*, xiv (1908), p. 151 seqq.

[2] From the harbour town of Knossos. See above, p. 250.

[3] See above, p. 123 seqq.

[4] P. 129, Fig. 63.

[5] This is best shown by the parallel finds of vessels of an identical proto-geometrical class at Karakovilia in Eastern Crete in company with fibulae in the bowed and stilted stage of development (see above, p. 137, Fig. 70, B) characteristic of a large contemporary area of Mainland Greece and which there represent the evolution of earlier forms.

Third Late Minoan Period (L. M. III *b*). Amongst other points it may be noted that the stirrup-vase referred to, which supplied the best illustration of the contemporary ceramic style, does not show the conical excrescence on the top that is so characteristic of the proto-geometrical forms.

Submergence of Shrine marks sudden end of 'Reoccupation'.

The bringing to light of this little shrine with its cult objects and ritual furniture, practically as they existed in the last days of the later settlement on the Palace site, was itself one of the most dramatic episodes in the history of the excavation. It was as if some ritual service of the last occupants of true Minoan lineage had been actually interrupted. The sudden submergence of these remains—intact and *in situ*—due to some new destructive agency, gains additional interest from the archaeological proofs supplied by them, that we have here the latest class of fabrics to which the name 'Minoan' can be properly applied. The relics found in the Spring-Chamber, which carry the local history of Knossos a step farther, show that a real dislocation occurred at this epoch, and that the new form of culture that now took its rise here, though it still incorporated many forms and traditions due to the older stock, had its roots in Mainland Greece. It seems possible that some incursion from that side may have put an end to the stage of reoccupation still represented in the Shrine of the Double Axes.

Was it due to a Mainland incursion?

Discovery of Leaden Sling Bullets.

Discovery of leaden sling bullets in pit, with votive relics from late Shrine.

In this connexion it seems pertinent to refer to a curious discovery made deep down in the neighbouring pit, and in a medium which excludes any possibility of later intrusion. About 6 metres down, in company with 'squat champagne glass' cups and other pottery identical with that found *in situ* in the Shrine of the Double Axes, occurred two leaden sling bullets (Fig. 196) which at first sight might have been regarded as of the same late fabric as the specimens that are not unfrequently found on the site of the Greco-Roman City. But not only were classical relics, early or late, entirely absent from the deposit in which these bullets lay, but when they are compared with the later Knossian type, of which a typical specimen inscribed KNW (backwards) is given in Fig. 197, differences are perceptible both in fabric and calibre. They are heavier, more round in section, and the slight ridge on the sides shows a less perfected method of casting. Moreover, in order to remedy this, they have been paired by a knife in each case to a sharp point at 'the business end'. They must have thus been far more penetrating.

Prototypes of Greek specimens from Knossos.

There is no evidence of the use of slings in Minoan Crete and, indeed, the only record of their use, the relief on the silver 'rhyton' from the Fourth Shaft

Grave at Mycenae, shows them in the hands of naked barbarian auxiliaries who, together with equally naked native archers,[1] are engaged in the defence of a Minoan or Mycenaean stronghold, pending the arrival of a regular relief force from the sea.[2] A large sling-stone, apparently of limestone, was found outside a tomb of the Acropolis at Mycenae,[3] and there is other evidence that this form of missile had an early vogue on the Mainland side.[4] Of its popularity in Anatolia we have a later record in the graphic design of a slinger which is the *type parlant* of the coins of Aspendus.[5] The Early Iron Age Civilization of Greece had absorbed elements from both sides of the Aegean, and the sling, though not mentioned in Homer, may well have been a very ancient heritage of men of Hellenic stock. It is evident that the leaden bullets that had found their way into the pit below the South-East Angle of the Palace had no natural connexion with the debris of votive objects in company with which they were found. Is it possible that the last true Minoan occupants of the Palace site were finally expelled under the hail of Achaean bullets?

No evidence of Minoan use of slings, though used by Barbarian Allies.

Fig. 196. Early Leaden Sling Bullets from South-East Angle.

Evidences of traditional use in Mainland Greece and Anatolia.

Fig. 197. Greek Sling Bullet with Name of Knossians.

Were the bullets shot by Achaean marauders?

We have not yet, certainly, reached the epoch of thorough-going Greek settlement in the Island. As already noted, there is evidence of a transitional 'Sub-Minoan' phase in Crete, largely interfused, no doubt, with extraneous elements, that bridges over the interval between the last purely Minoan stage—L. M. III *b*—illustrated by the remains within the late

Interval at Knossos between end of Reoccupation and actual

[1] From the objects shown in graffito on the ground beside them their opponents seem to have been armed with throwing-sticks and stones—possibly sling-stones.

[2] The fragmentary edge below shows the arrival of a boat with men wearing the typical peaked and crested helmets of Minoan and Mycenaean warriors.

[3] Athens Museum, No. 1369.

[4] In Perrot et Chipiez, *La Grèce primitive*, p. 129, Fig. 27, two stone sling bullets are reproduced from the Finlay Collection (40, 41).

[5] *B. M. Cat. Lycia, Pamphylia, &c.* (G. F. Hill), Plates XIX–XXI. The slinger recurs on the coins of Selge.

Greek settlement.

Shrine—and the 'proto-geometrical' period that belongs already to the early days of actual conquest. But on the Palace site itself relics of this intermediate class are conspicuous by their absence.[1] From the close of the 'Reoccupation' period onwards the site as a whole remained derelict for long ages to come, a desolation only partly broken at a much later date by the planting there of the small Greek sanctuary near the Upper Propylaeum.[2]

Period of sea raids.

That this sudden desertion of the site was the result of a raid from overseas is a highly probable conclusion. As in the case of the later Vikings who ravaged our own shores, it is reasonable to suppose that here too a period of piratic descents preceded that of actual conquest. The Egyptian records of Rameses III at Medinet Habu give us, indeed, a vivid picture of such sea raids in which the Akaiwasha took part.[3]

[1] Some vessels of this class were found at a higher level on the South-East borders of the site in the early days of the excavation.

[2] See above, p. 6.

[3] See *P. of M.*, i, pp. 664, 665, and Fig. 489.

Fig. 198. Fetishes in Form of Natural Concretions from Reoccupation Shrine, Little Palace, Knossos.

§ 48. Restoration of Palace after M. M. III *b* Earthquake: Work of Reconstitution. Influence of Catastrophe on Structure and Artistic Development.

Regional limitations of Earthquake; Parts of Knossian Palace supported by Cutting in hill-side; South Corridor destroyed and abandoned; Ruin of West Section; Contrast with Phaestos; Rubble structure of rebuilt inner walls; Later wholesale abstraction of limestone masonry from exterior; Yet many remains of upper floors; Work of Reconstitution—use of reinforced concrete; Restored upper elements—concrete beams; Copies of 'Cup-bearer' Fresco and 'Priest-King Relief' replaced in position; Revival of Early Minoan method of plastering whole wall ascribed to effects of Earthquake; Larger pictorial scope thus gained; Examples from H. Triada; Narrow bands, however, above dadoes survive; Great painted stucco reliefs—The Priest-King, &c.; Bull-grappling reliefs already known in Middle Palace, but new impulse now given to such large works; High reliefs of restored East Hall—acme of plastic art; Bull-grappling reliefs of North Entrance; Survival of stone-reliefs with half-rosettes and triglyphs; M. M. III b *'Medallion Pithoi' in West Magazines; Continuity of Culture not affected by great Catastrophe; Rapid recovery and rebuilding—restored Palace still ceramically M. M. III* b, *though* Tabula rasa *created favours evolution of new cultural phase; Artistic reactions of XVIII Dyn. Egyptian influence already visible in frescoes; Transitional style, linking M. M. III* b *and L. M. I* a.

Regional limitations of earthquake.

We have seen that the phenomena presented by the South-East Palace Angle conclusively point to a seismic cause for the great overthrow that befell the Palace and surrounding Town during the later phase of the Third Middle Minoan Period. How far inland or along the coast this catastrophe may have extended it is not easy to say, but it would appear from the many records already cited, including the curious discoveries that resulted at Knossos from the great earthquake of Nero's time, that this region was particularly subject to such visitations. There is, on the other hand, no evidence that the particular overthrow towards the close of M. M. III extended to Phaestos, though the Palace there had undoubtedly shared with Knossos an earlier destruction about the end of M. M. II. The Palace of Phaestos, as

Palace at Phaestos not affected. But cut short in L. M. I by other agencies.

magnificently restored early in the last Middle Minoan Period, survived intact for the most part to a mature phase of L. M. I. At that time its existence, at least as a princely abode, was cut short by some extraneous cause, though without any such signs of wholesale ruin as seem to have marked its earlier disaster.

Similar evidences of destruction, in cases perhaps of simple dereliction, at that epoch are presented by several houses in the immediate neighbourhood of the Knossian Palace as well as of other sites on that side, including Tylissos and Niru Khani. To a large extent, indeed, these and like traces of contemporary ruin that extend to the East of the Island—to Gournià, for instance, and Palaikastro—may have been due to the tyrannous lust of domination on the part of the lords of Knossos. Minoan Crete in fact at that epoch of its history seems to have anticipated the unfortunate spectacle of ruinous internecine struggles that repeated itself throughout Hellenic times when its cities were in turn the constant prey of rival combinations. Nothing short of Roman dominion was capable of putting an end to these suicidal feuds in later times.

Similar evidence in town houses at Knossos, &c.

Architectural survival at Phaestos.

The simple grandeur that strikes the visitor to Phaestos as compared with the more intricate and composite remains of a large part of the Palace site at Knossos is due to the fact that so much of the fine M. M. III work was there preserved intact. The great Earthquake, so destructive on the site of Knossos, does not seem to have much affected this Southern region. It is true that in the Palace of Knossos itself, where parts of the building were held together by artificial cuttings in the hill-side, a good deal of the M. M. III structures had been preserved practically in their original condition. Such was the case in the Domestic Quarter with its Grand Staircase, three flights of which and part of a fourth were found in position. So, too, the fine bastions of the Northern Entrance, partly supported by a similar backing, survived the shock. But the Southern front, rising above the steep on that side, was so ruined that most of it was left out of the plan of the restored building, and the new outer wall-line on that side receded behind the original South Corridor, the Western section of which, like the South-East Angle, was now entirely given up.

Parts of Knossian Palace supported by cuttings in hill-side.

S. Front mostly destroyed and abandoned.

The same recession of the Palace boundary is observable in the North-West region, but the evidence tends to show that this may have been the result of a considerable overthrow that seems to have befallen the building about the close of the earlier M. M. III phrase or, roughly speaking, about the middle of the seventeenth century B. C. The elegant stone ewers with their plaitwork decoration and the spouted bowls with their shell inlays,

found in and about the North Lustral Basin, all stand in connexion with ceramic types belonging to the earlier M. M. III phase (*a*).[1]

The destruction of the succeeding epoch in the inner Palace area, especially in its Western section, was grievous indeed, and its restoration demanded a full concentration of energy and resources. The Entrance Porch and Corridor on the South-West, the whole of the Upper and Lower Propylaea, and the series of great halls above the basement chambers and magazines must have been left one continuous heap of ruins.

Rubble structure of rebuilt inner walls.

Thus the visitor—who finds his natural access on that side—sees within the gypsum orthostatic course of the outer wall—still a noble feature—a succession of interior walls built up out of a jumble of rubble masonry and re-used blocks.

Rubble blocks, derived from the ruins of the M. M. I–II Palace, had certainly been made use of in the building as reconstructed early in M. M. III *a*. But the walls were none the less much more largely compact of ashlar stone-work than those rebuilt after the succeeding Earthquake. One particular feature indeed of the M. M. III *a* Palace, which seems to have distinguished its principal rooms and covered spaces, was the insertion of panels of good limestone masonry in a wooden framework formed of upright and horizontal posts—a good example of which has been illustrated in the case of the South wall of the Hall of Double Axes.[2] In the restored West Quarter, however, nothing more than occasional traces survive of these panels of ashlar masonry.

The vast mass of the interior walls consists of rubble material. These walls indeed mostly follow the lines of the earlier Palace, and in the Westernmost section maintain the spacious arrangement of the Magazines and Long Corridor. Gypsum blocks, which were eschewed by later depredators, are often found in position, as in the case of those beside the entrances of the West Magazines. But what may have been originally preserved of the later Palace in the way of fine limestone masonry—which not only formed a feature of interior panelling, but undoubtedly rose in solid masses on the borders of the great Courts on either side—has been liable to a special fatality on this site. Greeks, as we have seen,[3] of the seventh century B.C. had already made use of great blocks taken from the stairs leading to the Upper South Propylaeum and its supporting bastion for a small temple within this corner of the old building. The Hellenic and Greco-Roman city that grew up in the area North and West of the site must have devoured much material, and

Wholesale abstraction of limestone masonry of exterior.

[1] See *P. of M.*, i, p. 411 seqq.

[2] *Ib.*, p. 349, Fig. 251.

[3] See above, p. 346.

the mighty Venetian walls of Candia no doubt claimed their share. Within the memory of man, Turkish proprietors are known to have carried off quantities of good limestone blocks from the South-West Corner of the Central Court and the outer borders of the West Entrance. In the latter case a good deal of painted stucco that probably belonged to the West wall of the 'Corridor of the Procession' was, according to report, broken up, in the course of the demolition.

Work of Reconstitution.

Yet many remains of upper floor.

In spite, however, of the general ruin of the *piano nobile* and upper stories of the West section of the Palace, many bases of pillars, the stone supports of door jambs, and important stair-blocks, together with parts of the steps themselves, had remained in position above the basement piers and walls, and in part supported by fallen masses of sun-dried bricks from the upper stories. In several places sunken column-bases were found in close relation to supporting pillars—notably in the case of the early 'Pillar Crypts'. Near the South end of the 'Long Corridor' Magazines, indeed, there remained, only slightly sunken beneath its original level, part of the ashlar masonry which here bordered a long light-area of similar dimensions that had run above the 'Upper Long Corridor'.

Work of reconstitution: Use of reinforced concrete.

In view of these numerous elements of reconstitution and the certain guide afforded by the main wall-lines and piers of the basement area, it has been possible to a great extent to restore the arrangement of a large part of the West wing. By a process hitherto unprecedented in the case of ancient buildings, but which may in this case meet approval from the unparalleled nature of the problem that had to be faced, the upper floors have been restored by a large recourse to reinforced concrete, the lines of their dividing walls and door jambs, the column-bases of halls and porches, and the lower part of flights of stairs being replaced in their positions and, where gaps existed, completed or reproduced in cement. As an illustration of this work, a view of the restored floor of the 'Tri-columnar Hall', above the East Pillar Room, is given, by anticipation, in Fig. 199.

This re-supporting process—much the same in character as that which had been found a first necessity in the case of the Domestic Quarter, where iron girders were employed[1]—has brought about a similar result. What would largely have been an unintelligible mass of crumbling ruins, has been preserved, it is hoped, for futurity, in such a manner as to tell its own

[1] For the re-supporting work carried out by Mr. Christian Doll in the Domestic Quarter, see *P. of M.*, i, p. 328.

Fig. 199. Reconstituted Floors, etc., of Hall above Pillar Rooms and Adjoining Area.

Restored upper elements; Concrete beams.

tale. The spacious approaches, the corridors, and 'Tri-columnar Hall', the verandahs on the Central Court, and the indication even of a second story by means of the partially rebuilt staircases have made once more intelligible the arrangement of this whole Palace section. At the same time the numerous existing elements of the upper stories found originally at a higher level have been reset in the positions to which they belonged. As in the case of the Domestic Quarter, the columns themselves have been in some places restored in stone and painted stucco. As a result, moreover, of the flooring over, the gypsum slabs of the pavements and walls of the basement spaces have been preserved from slow disintegration due to atmospheric causes. In the case of these, rain has been found to be specially deleterious, and in many cases their exposed surfaces simply melt away.

Fig. 200. Column-base re-supported by Ferro-concrete Beam above Pillar of Eastern Pillar Crypt.

As a necessary part of this reconstitution of the upper floors many of the great supporting beams and posts—plentiful remains of which here, as in the Domestic Quarter on the East slope, were found in a carbonized condition—have been permanently replaced in reinforced concrete, conventionally coloured to represent wood. Fig. 200 gives an example of this method of restoration of the great beams that originally rested on the pillar of the Eastern Crypt and the adjoining piers, and which supported one of the column-bases of the Central Hall on this side. The base itself had been found at a lower level in the adjoining space known as the 'Room of the Column-Bases'.[1]

[1] The gypsum column-bases, one of which had undoubtedly been placed above the Eastern

Only at certain points, however, in the neighbouring area has it been possible to restore *in situ* the painted stucco coating of the walls, which was the real glory of the later Palace. This, indeed, has been attempted by means of permanent copies, in the case of the 'Cup-bearer Fresco' in the later South Propylaeum and of the 'Priest-King Relief' in the South-North Corridor.[1]

Copies of Cup-bearer Fresco and Priest-King Relief placed in position.

The wholesale covering of wall surfaces with painted stucco, of which we now have evidence, brings us to a distinctive feature in the wall decoration as undertaken after the great Earthquake.

Influence of the Catastrophe on Structural and Artistic Methods of the Minoan Restorers.

Method of plastering whole walls revived.

The problem that confronted the builders of the restored Palace was in truth very different in its nature from that of an earlier epoch when the materials were drawn as required from the quarry, the clay-pit, or the forest. Here were vast masses of debris in regard to which direct utilization offered at the same time the best means of clearance. The result of this was a wholesale return to an earlier system of construction, already referred to in the case of the E. M. II buildings at Vasilikì,[2] where the coarse lime plaster covering of the rubble or sun-dried brick core of the walls—which acquired great hardness owing to the formation of silicates—may be said to have actually fulfilled a constructive function. For plain decoration, indeed, such as covering the whole wall with a paste of ochre or Venetian red this original practice had never gone out, especially as regards basements and the rooms of smaller houses.

It looks as if at Knossos itself a tendency this way, best traceable in certain large works in stucco relief, only became of general effect after what appears to have been a fresh earthquake shock that wrought much damage in the town towards the close of L. M. I *a*. The method already in vogue of coating the lower part of the walls with slabs of gypsum or other decorative stone-work to a height of about two metres, against a coarse stucco backing, could still in most cases be extensively employed and was, indeed, largely maintained in the restored building, especially in areas like the Domestic Quarter where remains of such dado decoration belonging to the older building had been preserved. In the case of the 'Procession Corridor', itself,

pier, were found above the floor of this room. They are shown resting against its West wall in *P. of M.*, i, p. 442, Fig. 318.

[1] A specimen of this class of restoration is also to be seen in the Griffin fresco in the 'Room of the Throne', belonging to a later stage of the Palace.

[2] *P. of M.*, i, p. 72.

there is some evidence that according to the first scheme of restoration there may have been gypsum dadoes. But this was, at most, a temporary phase.

Broad painted designs: Dadoes at times indicated.

The extension of the painted stucco field might be effected by means of coloured reproductions along the lower part of the walls of the veined and variegated stone slabs of the older Palace tradition, while confining the figured designs to a band above. Of this method there are several examples, dating from the latest Palace period,[1] L. M. II, and we have already seen a more delicate anticipation of it in the painted stucco dado with imitation marbling, found on the Eastern borders of the Palace.[2] Or again, the main painted design could be broadened out so as to carry it well-nigh down to the pavement level. The broad stucco surface, already seen at Vasilikì, thus became a vehicle for palatial designs.

Larger pictorial scope thus gained.

Since, roughly speaking, twice the former height of the field was thus gained, the splendour and scope of the pictorial effect was greatly enhanced. There was often room, moreover, for two rows of full-length figures on the walls. In the case of the 'Cat and Pheasant' fresco in a room of the little Palace at Hagia Triada, which belongs to the beginning of the New Era, we find, on the other hand, that the whole field down to a painted band above the floor-level was occupied by picturesque designs, forming a continuous whole. A section of these is given in Fig. 201,[3] in which a roe is here seen taking a flying leap amidst rocks overgrown with flowers and creepers. In the Palace of Knossos, too, it may be fairly said that the very ruin wrought by the earthquake had promoted the evolution of a new style in pictorial art, more brilliant and imposing than anything that had preceded it.

Narrow bands more usual in earlier frescoes.

The earliest preserved fresco, depicting the 'Saffron Gatherer', had belonged to a comparatively narrow band which we may suppose to have been placed above a high dado. The same is true of the seated groups belonging to the series of the 'Ladies in Blue', versions of which, as will be shown below, decorated the earlier passage that preceded the 'Corridor of the Procession'. It is also eminently true of the series of 'Miniature Frescoes', the central chronological point of which we know from some recent evidence to have belonged to the penultimate phase of M. M. III. This fashion of comparatively narrow bands of painted designs on the flat was still followed on occasion down to the Late Minoan Age side by side with the larger schemes. The 'Camp-stool' frescoes to be described later on and the smaller panels with acrobatic performances of the bull-ring belong to this class.

Such friezes, however, survive.

[1] See *P. of M.*, vol. iii.

[2] *P. of M.*, i, p. 356, Fig. 255.

[3] See, too, *P. of M.*, i. p. 356, Fig. 255.

FIG. 201. FRESCO FROM HAGIA TRIADA IN NEW STYLE COVERING THE WHOLE WALL-SURFACE. LEAPING ROE AMIDST ROCKS COVERED WITH FLOWERS AND CREEPERS.

Great painted stucco reliefs.

In the case of painted stucco reliefs it is clear from stratigraphic evidence that examples of such already existed at least by the beginning of the last Middle Minoan Period. Remains of bas-relief compositions in which bulls took part were found, for instance, in company with the 'Spiral Fresco' in a layer belonging demonstrably to the initial phase (*a*) of M. M. III.[1] It is obvious that such bull-grappling scenes must have occupied a large field, though a variety of indications point to the conclusion that they were placed above an architectonic dado.[2] In the case of their successors belonging to the concluding Palace epoch, which are painted on the flat, the base of similar scenes of the Minoan

Bull-grappling reliefs already known in Middle Palace.

[1] See *P. of M.*, i, p. 370 seqq. and p. 376, Fig. 273. Fragments of a bull relief were also found in a M. M. III medium in the 'House of the Sacrificed Oxen'.

[2] For the 'triple gradation' of the base in bull-grappling scenes on seal-impressions of

taurokathapsia consists of coloured imitations of variegated stone slabs.[1] So, too, in the frescoes of the 'Room of the Throne' belonging to the same period, the Griffins rest on a painted stucco imitation of banded slabs.

But new impulse now given to such great reliefs.

But although such painted reliefs already existed in the M. M. III Palace, there are reasons for concluding that in this case, too, the necessity in which the decorators of the restored building stood of covering large spaces of rough rubble walling with a stucco facing gave a new impetus to the execution of such compositions. The same applies to the allied agonistic class with which they are coupled in the rhyton-reliefs, presenting a series of groups of boxers or wrestlers. From the position in which the remains were found there are, as will be shown below, the strongest grounds for believing that what seem to have been the grandest examples of both these classes, and which represent the acme of plastic relief, owed their execution to the masters of the craft who decorated the restored Palace. One of these examples is the great composition to which belong the fragments of painted reliefs of bulls, together with a human leg and parts of an olive tree, found in the Northern Entrance Passage. The other, derived from a great East Hall, which includes parts of a relief of a pair of wrestlers as well as of bull-grappling scenes, shows the art of high relief in its fullest development.

High reliefs of restored E. Hall: Acme of Plastic Art.

Bull-grappling reliefs of N. Entrance.

Survival of stone reliefs with half-rosettes and triglyphs.

At times it is difficult to be certain whether architectural features of the new building are reconstructions on the old lines or simply survivals of earlier elements. Parts of a stone frieze, to be illustrated below, that had fallen into the Fourteenth Magazine, display the same half-rosettes on either side of triglyph bars, which, as we have seen, go back to the earliest phase of M. M. III[2] and were already imitated in painted plaster in its pre-seismic stage.

M. M. III *b* 'Medallion Pithoi' in W. Magazines.

On the other hand, it may be thought probable that certain 'medallion pithoi' of M. M. III *b* style which were found in the Sixth and Tenth Magazines among those of Late Minoan style, were not mere survivals from the older building, but had been made at the time of the restoration for the places that they occupy, by potters who had executed similar jars buried and destroyed, and who continued to work in the same style. Parallel phenomenon is observable in the North-East House[3] and in the 'House of the Chancel Screen'.[4]

the close of M. M. III, see *P. of M.*, i, p. 686, Fig. 504, *a*, *b*, and p. 687. For a good example of a similar scene, over a base consisting of isodomic masonry, on a gold signet-ring from Arkhanes, see my *Ring of Nestor*, &c., p. 6, Fig. 5.

[1] For instance, on the base of the East wall of the West Porch, and again, on a smaller scale, on the South wall of the antechamber of the 'Room of the Throne' (see Vol. iii).

[2] See above, pp. 162–4 and Fig. 83.

[3] See below, p. 417.

[4] See below, p. 395.

Continuity of culture not affected by great catastrophe.

That splendid works of painting and relief, representing the high-water mark of Minoan Art and the consummation of the later Middle Minoan style, should have graced the walls of the restored Palace, brings us face to face with another aspect of the great catastrophe. It must be continually borne in mind that we have not here to deal with a ruin caused by hostile human action and entailing as its result the weakening and depression of the body politic. The actual destruction was no doubt very extensive and the material losses severe, especially if we may add the methodical plundering of the treasure cists and, probably, the ravages of fire. But it was local or regional at most, not general, and the culture itself as a whole was not impaired. The Knossian artists were not carried off to foreign captivity, and the crafts that they had learned remained their inalienable possession. After the first staggering effect, the organizing skill that was an heirloom of the Palace lords seems to have re-established order out of chaos, on methodical lines. In Palace and Town alike the enterprising spirit of this great Minoan epoch was spurred rather than broken. For the rapid recovery and renovation over the whole area of the site—of which there is now cumulative evidence—we should rather turn to what has been achieved after signal disasters in modern times, at San Francisco, for instance, at Chicago or Tokio. Like the citizens of the New World in a similar emergency, those of Minoan Knossos rebuilt their dwellings on the old lines, but, in the case of the town-houses at least, generally on a larger scale, with new adaptations and improved appliances.

Rapid recovery and re-building.

Earthquake marks middle rather than end of M. M. III *b*.

In fixing the archaeological landmarks certain points have to be kept clearly in view. The great catastrophe that we have here traced to a seismic cause occurred at a time when the later phase of the Third Middle Minoan Period was still in full force. Some break in continuity, due to whatever cause, seems to have occurred within the Palace area about the close of M. M. III *a*.[1] But the contents of the Temple Repositories[2] and of the Ivory Deposit to be described in vol. iii which must be definitely assigned to the M. M. III *b* side of the border, represent the highest development of the art of that Minoan phase. Such works as the faïence figurines and reliefs

[1] For evidences of this, see *P. of M.*, i, p. 369, for the earlier East Hall, and p. 411 seqq. for the 'North-West Bailey' and Lustral Area. The *alabastron* lid inscribed with the cartouche of the Hyksos Pharaoh, Khyan (p. 419, Fig. 304, *b*) belonged to the mature stage of this stratum (see p. 421). Further stratificatory evidence for the two M. M. III phases are supplied by the deposit beneath the pavement of the Room of the Stone Pier, *op. cit.*, pp. 588, 589, and Fig. 432. Much evidence of the M. M. III *a* stage was also brought out in the basements West of the 'House of the Frescoes', excavated in 1926 (see below, p. 366 seqq.).

[2] *P. of M.*, i, p. 463 seqq.

as the ivory figure of the leaping youth, and the small but exquisite fragment of miniature fresco from the Deposit of Ivories are unsurpassed of their kind. In the ceramic field the only real element more or less in common with the true L. M. I series is supplied by sporadic fragments of late 'tortoise-shell ripple' ware such as are illustrated in Fig. 202[1] below, found together with masses of M. M. III *b* pottery.[2] Of transition to a special style that can be claimed for the New Era there is, as yet, little evidence.

Tabula rasa created favours rapid evolution of New Cultural Phase.

No doubt the effects of the destruction in supplying a free field for craftsmen in every branch, and in certain cases, as we have seen, demanding new methods, greatly hastened the development of the new form of culture to which the general name of Late Minoan has been given. But it is not archaeologically accurate to include even within the upper limits of L. M. I *a* the earliest artistic records that we find on the walls of either the restored Palace or of the newly built town-houses.

Permanence of frescoes on walls compared with changing floor deposits.

In this connexion it is always necessary to insist on a constant phenomenon of the excavation. The hard stucco coating on walls was almost a permanent feature in covered areas, and fresco designs and reliefs were apt to remain *in situ* for generations. Thus, from the height above the Late Minoan roadway of the Northern Entrance Passage at which parts of the fallen bull-grappling reliefs lay, we must conclude that they had remained in position well into Hellenic times—a conclusion that may have had a very interesting bearing on the local folk-lore.

Plastic and pictorial works found on or in relation to walls of a given epoch, such as those belonging to the constructions restored after the Earthquake, may generally be regarded as of contemporary execution.

But, in contradistinction to this, the ceramic or other relics left on floor-levels, with the exception of certain very large and ponderous vessels such as were the store jars, regularly belong to the last epoch in which the floor was in use. As, in the reconstructed Palace, the pavements remained for the most part practically on the same level throughout its duration, it thus ensued that the pottery found belonged almost exclusively to its latest stage, namely, the closing L. M. II *b* phase. The last ceramic elements beneath the pavements were, on the other hand, M. M. III *b*, marking the date of the great catastrophe. Exceptionally, in the Eighteenth Magazine, where some local alteration had been carried out in the floor, L. M. I *a* vases were found

Only relics of latest Occupation found on floors.

[1] See below, p. 363.

[2] Similar association of masses of M. M. III *b* pottery with a few late 'tortoise-shell ripple' sherds occurred in the material that filled the interstices of the walls of the Little Palace.

immediately below the later pavement.[1] But it was not possible, for the above reasons, to obtain a *terminus a quo* from pottery found above pavements within the Palace, though such remains often supplied a *terminus ad quem.*

Resulting *lacunae* in Palace ceramic series.

One result of this should be kept in view in comparing the ceramic relics of the Knossian Palace with those from some other sources. Owing to the archaeological law that the small relics found on floors belong to the last moment of occupation, remains of three distinct L. M. I epochs are largely or entirely absent. There is practically nothing to show for the very interesting phase that marks the rapid evolution of the L. M. I *a* style from the latest Middle Minoan. Mature L. M. I *a* itself is only sporadically forthcoming, and the very beautiful L. M. I *b* style that succeeds it with its naturalistic marine and rock-work designs, reflecting the fresco style already in vogue, is almost entirely absent within the Palace.

Only in the private houses of the adjoining town area which had their individual vicissitudes and did not in many cases persist in the same way as the greater building, the pottery found on the floor-levels occasionally gives a more approximate guide to the date of the decoration of the walls. Thus an exceptionally valuable indication is supplied by the 'House of the Frescoes' described below,[2] so named from the abundant remains of wall-paintings derived from it. These, as will be shown, exhibit rocky landscapes in which appear monkeys and birds, varied with a profusion of flowers and creepers, and illustrating in a very similar manner the same naturalistic spirit as is observable in the Hagia Triada fresco where the cat is seen stalking a pheasant.[3] There is a fair presumption that this house, with its varied decoration and the interesting relics that it contains, had existed for an appreciable number of years. Yet the small painted clay vessels found on its floors represented, besides some transitional M. M. III *b* types, only the early phase of L. M. I *a*. That the wall-paintings in question come, archaeologically speaking, within the lower limits of M. M. III, to which—as shown in the previous volume—other kindred works belong, is an inevitable conclusion. It is equally certain that the original painted stucco decoration on the reconstructed walls of the Palace, like the walls themselves, really illustrated the same advanced M. M. III phase.

L. M. I *a* pottery on floors of 'House of the Frescoes'.

Frescoes there M. M. III *b*.

To escape such a conclusion it would, indeed, be necessary to suppose that an interval of about a generation had elapsed between the overthrow

Only brief interval

[1] So, too, beneath the pavement of the antechamber of the 'Room of the Throne', which, with the adjoining structures West, was a work of the latest age of the Palace.

[2] See below, p. 363.

[3] A part of this is reproduced in *P. of M.*, i, p. 538, Fig. 391, and cf. p. 355, Fig. 201, above.

between Overthrow and Rebuilding in Town and Palace.

and the rebuilding of the Palace, during which its whole area had remained derelict. But the difficulty of such an hypothesis is greatly enhanced by the fact that precisely the same phenomena recur in the case of the private houses of the surrounding Town. There, too, in the clay filling and mortar within the crevices of the walls and immediately under the floors, pottery of the same M. M. III *b* class—answering to its mature phase as seen in the Temple Repositories—is of constant recurrence. A few older sherds belonging for the most part to M. M. II are also found, but even the earliest Late Minoan fabrics are conspicuous by their absence. It is inconceivable, on a populous site like that of Knossos, that both Town and Palace alike should have been wholly uninhabited for any appreciable time. Had, however, even a small population remained, a certain intermixture of later sherds illustrating the transition from M. M. III to L. M. I would surely have come to light. The data now at our disposal are too uniform in character to allow of such an alternative supposition.

Latest sherds connected with new structures M. M. III *b*.

Earthquake not actual term of M. M. III, though it heralds New Era.

Earthquake not an actual dividing-line between M. M. III and L. M. I.

The Earthquake itself offers such a striking historical landmark at Knossos, and must have come so near in date to the epoch from which the incipient development of Late Minoan I characteristics is visible in the pottery, that a distinct temptation may be experienced to regard it as the actual dividing-line. But this, as we have seen, is not strictly accurate. It is true that, within the Palace walls especially, the mass of debris to be dealt with imposed at once certain new adaptations of material, but the fine artistic tradition of M. M. III, as shown both in the naturalistic landscapes and the bold reliefs, survived intact. At the same time a great impetus was given to new elements, and the process that, for instance, transformed the somewhat heavy class of pottery that marks the M. M. III phase into the brilliant fabrics of L. M. I must have been remarkably rapid. If we may judge from the association of Khyan's *alabastron* with Minoan ritual vessels belonging to the M. M. III *a* style, it would seem that the great Hyksos Pharaoh, who once more made Egypt an imperial power, had done something to reknit the connexions between Crete and the Nile Valley that had suffered an interruption in the confused period that marks the break up of the Middle Kingdom. Already by the mature phase of M. M. III Egyptian influences are once more becoming very perceptible. Attention has been called above to the suggestion of Hathoric schemes and symbolism, visible in the faïence reliefs of the Temple Repositories.[1] A decorative

But heralds change.

Khyan's lid symptom of revived connexion with Egypt.

[1] *P. of M.*, i, p. 509 seqq.

form of the papyrus appears on a faïence pendant, and lotus clumps supplied the model for the conventionalized arrangement of the indigenous crocus tufts painted on the votive robes. Even more remarkable are the evidences of the reaction of Cretan artistic specialities on Egyptian work of this epoch as exemplified by the engraved rib of the dagger-blade of Queen Aah-hotep, the mother of Aahmes, the last king of the Seventeenth Dynasty, and, again, by his axe-blade, found in her tomb. The dagger-blade, in its design of lions chasing bulls, illustrates the Minoan 'flying gallop' motive, while above them appears the purely Minoan device of rocky outlines descending from the upper field.[1] The griffin's wings on the axe-blade[2] exhibit, as has been already pointed out, in a secondary form, the characteristic 'notched plumes' such as we see them already on the bone arrow-plumes of the Temple Repositories.[3] On the other hand, the monkeys and conventionalized papyrus tufts on the panels of the 'House of the Frescoes',[4] belonging to the first moment of the Restoration, still ceramically M.M. III *b*, clearly hail from the Nile. The inlaid dagger-blade, on the other hand, from the Fifth Shaft Grave at Mycenae[5] (probably belonging to the beginning of the First Late Minoan Period), where cat-like animals are seen hunting wild-ducks amidst papyrus thickets on the banks of a stream—'the River of Egypt'—stands in a less independent relation. It almost literally reproduces a Nilotic scene of the early Eighteenth Dynasty class.

Minoan artistic reactions already visible by end of XVIIth Dynasty.

Egyptian influence in 'House of the Frescoes'.

It may be regarded, indeed, as a *nuance* of the closing Middle Minoan phase, that, while such themes as the cat stalking the pheasant, of which we have a record at Knossos as well as at Hagia Triada, obviously convey a suggestion of the duck-hunting scenes of the Egyptian artists, they are set in the traditional rock landscapes of the Island, amidst the plants and flowers of the Cretan country-side. In the advanced versions such as the above and similar representations on Late Minoan intaglios and painted pottery, this indigenous element is discarded: the setting also has become purely Nilotic.

Suggestion of Nile-pieces followed by literal copies.

This is only one out of many instances in which the too direct reproduction of Egyptian models had a deadening effect on Minoan Art. It may, indeed, be truly said that the epochs in which that Art showed its purest naturalism and freedom were coincident with periods when the connexions with Egyptian civilization were at their weakest. There is some evidence

Naturalistic art flourishes in inverse ratio to Egyptian influences.

[1] *Ib.*, p. 715, Fig. 537.
[2] *Ib.*, p. 551, Fig. 402.
[3] *Ib.*, p. 548 seqq.
[4] See p. 451, Fig. 264.
[5] Reproduced by U. Köhler in *Ath. Mitth.*, 1882, Pl. VIII; in colours, Perrot et Chipiez, *La Grèce primitive*, Pl. XVII. A L.M. I *a* painted ewer occurred in this grave.

of such a free development, under a primitive and at times a bizarre aspect, during the closing Early Minoan phase[1]—a time which corresponds in Egypt with the period of depression that intervenes between the Sixth and Eleventh Dynasties. The Third Middle Minoan Period, on the other hand, when the glyptic arts attained their most free development, was synchronous with the Hyksos domination. Civilized as was the Late Minoan Age—the Age of the greatest material prosperity and of the widest expansion of the Minoan race—brilliant as were its achievements in decorative works, and decided as was the advance in some technical processes, the high level of art reached in the spacious days that had preceded it was hardly maintained beyond its incipient stage and never afterwards regained.

Multifarious relations of L. M. I Crete with XVIIIth Dynasty Egypt.

Egyptian influences, to which this many-sided culture of the New Era that now opens in the Minoan World was constantly indebted, were ever on the increase during the earlier part of the Eighteenth Dynasty. The date, indeed, of the accession of Aahmes, the founder of the New Kingdom—1578 B.C.—must have by some years preceded that of the great Earthquake that took place towards the close of M. M. III. In certain wall-paintings belonging to structures like the 'House of the Frescoes' that go back ceramically to M. M. III *b* and belong to the epoch of Restoration, we already trace a marked reaction of Egyptian models. From this fact, moreover, we may draw the further conclusion that the true L. M. I *a* ceramic stage can hardly go farther back than the middle of the sixteenth century B.C., a result which must somewhat modify the received dating of this style.

Ceramic distinction between M. M. III *b* and L. M. I *a* generally clear.

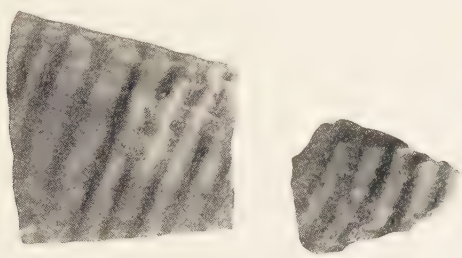
As throughout the whole of the Minoan story, all is of course transition. Except in the case of very definite stratigraphic data, it is impossible in many cases to place an object of art on the one or the other side of what is after all an arbitrary line of division between the last Middle and the earliest Late Minoan products. In the ceramic field, however, the distinction is generally clear. In all the contemporary deposits referred to above—many of them due to the closing of the earlier cists and 'kaselles'—no pottery occurred of the typical Late Minoan or 'Mycenaean' class, with its fine highly glazed texture and brown decoration on a pale buff ground. As

[1] This free development, for instance, is seen in the dog carved in high relief on the green steatite lid from Mochlos (*P. of M.*, i, p. 94, Fig. 62), belonging apparently to the close of E. M. II; in the grotesque figure of the young bird opening its mouth for food (*ib.*, p. 116, Fig. 85); and in the ivory seal from the Mesarà *tholos* in the form of a dove sheltering its young under its wings (*ib.*, p. 117, Fig. 86)—the last two E. M. III. M. M. I pottery still shows traces of this naturalistic tendency (cf. *op. cit.*, pp. 182, 183, Figs. 131 *a*, *b*, 132 *a*, *b*.)

a rule the Late Minoan vessels are better baked, and the mere clink of pottery of this class is often sufficient to distinguish it from the usual M. M. III fabrics. The light ground is now almost universally prevalent, in contrast to the purplish brown ground and white decoration that are characteristic of the preceding tradition.

'Tortoise-shell ripple' ware as element of transition.

As an element of connexion, indeed, the 'tortoise-shell ripple' ware which, as shown above,[1] had a long Middle Minoan history, plays an important part, and its buff ground and glaze affords a real anticipation of Late Minoan fabrics. This class of ware may well be regarded as having led the way to the general adoption of the dark on light style, nay more, in its M. M. III *b* shape, it is practically indistinguishable from the form in which it survives into L. M. I *a*.



a *b*

FIG. 202. SHERDS WITH LATE 'TORTOISE-SHELL RIPPLE' DECORATION FROM 'EARTHQUAKE STRATUM' (M. M. III *b*).

This has been well established by a series of tests undertaken beneath the stylobate slabs of the later façade of the West quarter of the Palace facing the Central Court, and, again, under the pavement slabs taken from the ruined South front of the building for a new road of approach to the South Porch. In the first case, where the amount of associated sherds was less numerous, the occurrence of a few specimens of this late rippled ware misled me for a time into concluding that the extended façade was constructed when L. M. I pottery was already beginning to be stratified. But under the paving of the new road-line leading from the bridge-head to the Southern entrance—the making of which must have become an immediate necessity after the catastrophe, owing to the overthrow of the older South-West Porch and of the Stepped Portico approaching it[2]—a mass of evidence came to light of an altogether convincing character. Embedded in the clay layer beneath the slabs and associated with quantities of earthquake debris—including fragments of vessels of the same kind as those of the 'Temple Repositories', parts of 'Medallion' *pithoi*, and common M. M. III *b* cups—occurred several pieces of this late 'rippled ware', thus reiterating the results obtained from under the façade stylobate. Some specimens found beneath the N.W. pavement slab, near the South Porch,

[1] *P. of M.*, i, pp. 592, 593, and Fig. 435.

[2] See above, p. 141 seqq.

are shown in Fig. 202.[1] But among hundreds of M. M. III *b* fragments no single sherd there occurred of even the earliest L. M. I fabric.

It is only in isolated cases like the above that the ceramic fabrics can be the cause of any misunderstanding. So far as Knossos is concerned the earliest stratified remains of the L. M. I class, indeed, are so clearly separated in style and fabric from those of the Palace cists and store-rooms, submerged as a result of the great overthrow, that a not inconsiderable interval of time must have elapsed between the two series of deposits. For the actual process of transition we especially have to turn to certain East Cretan sites. At Palaikastro and Zakro, and in the case of the burial urns of Sphungaras and Pachyammos we see it carried out without a break.[2]

Higher artistic products of border-land—'Transitional M. M. III–L. M. I.'

When, however, we have to deal with artistic products other than pottery, in cases where direct archaeological evidence fails us, the attempt definitely to assign an object to M. M. III *b* or L. M. I *a* is often not an easy matter. The boundary itself is after all of an artificial nature, and, in judging questions of style, subjective considerations are liable to enter in. The best grounds for comparison on one side are supplied by the contents of the Temple Repositories at Knossos, and by the related elements among the earlier relics of the Shaft Graves at Mycenae. In the other direction we have the evidence, both in Crete and Mainland Greece, of tombs with distinct L. M. I contents such as the beehive tombs at Kakovatos and Vapheio. But final judgement as to the exact place of some of the finest products of Minoan Art that lie within this border-land must often be reserved, and to avoid unnecessary discussion, such works are often referred to here as 'Transitional M. M. III–L. M. I'.

[1] Under this slab were found about 480 sherds, all, so far as could be judged, of typical M. M. III *b* fabric, together with seven fragments of the late 'rippled ware'. Test of 1926.

[2] See *P. of M.*, i, p. 608 seqq.

§ 49. Town of Knossos and the Great Rebuilding: The South House and Adjacent Quarter.

Seismic effects on Palace, and its later denudation of stone-work; Surrounding Houses supply fuller Architectural evidence for New Era; Increase in size of houses; Neolithic and Early Minoan House remains; Middle Minoan houses of S.E. Palace Angle; M. M. Town Section excavated in 1926, N.W. of 'House of the Frescoes'; Early drain and pottery, M. M. I a; *M. M. III* a *Vessels from house floors; M. M. III* a *house plans; 'Tower Houses'; M. M. Town as illustrated by 'House Tablets'; Fortified Enceinte of Juktas—M. M. I* a; *Later Town of Knossos, open; Advance in domestic Architecture; The South House—its intrusion on old Palace boundary; Palatial debris found in back yard—deposit of 'tesserae'; Construction of back wall; Window of Megaron; 'Lustral Area', later filled in; Remains of its original painted decoration; Ceramic evidence of M. M. III* b *date; L. M. I* a *Vases and Stone Cup of Vapheio shape; Pillared Basement and Store-room with hoard of Bronze Tools; Primitive lock; Stairs with dove-tailed Steps; Lavatory and Latrine; Pillar Crypt, with Stands for Double Axe and other Cult objects; One-Columned Chamber above; Hoard of Silver vessels; Ivory relief of Griffin seizing bull; Upper flight of Stairs; Sun-dried bricks from upper Stories; Adjacent houses with Bronze Hoards; Private house built within S.W. Palace Angle.*

Seismic effects on Palace.

It is clear that as a result of the great natural convulsion, of which so many indications have been noted above, a large part of the Palace site, and in particular its Western section, had been reduced to a heap of ruins. In certain directions, as already pointed out, its old boundaries were now definitely restricted. Both the South-East Palace Angle and South Corridor were given up, while the North-West Bailey with its Initiatory Area and Lustral Basin had been already abandoned owing to a somewhat earlier catastrophe and left outside the Northern wall-line as now established. On the other hand, the façade along the West side of the Central Court was brought forward to accommodate the Stepped Porch and to give room for the pillars and columns of imposing tiers of balconies.[1]

[1] See a restored drawing by Mr. F. G. Newton, giving an idea of these, see opp. p. 814 below.

The mass of debris with which the restorers of the building had to grapple greatly affected the character of the new inner walls, the rubble and plaster construction of which, as we have seen, also found its reaction in a new style of frescoes and reliefs. But unfortunately the great denudation of fine limestone masonry suffered by the West Wing has deprived us of many illustrative materials regarding the architectural features of the beginning of the New Era. In the better preserved Domestic Quarter on the East slope, moreover, it is not always easy to distinguish the new structural elements from those of the immediately preceding epoch.

Later denudation of stonework.

Happily, in this and other respects, much supplementary evidence has been preserved by the remains of the surrounding town-houses built at the same time. The remains of these, indeed, of which a dozen have been now more or less fully explored, convey a truly astonishing idea of the diffused well-being of the burgher class of Knossos at this time.

Surrounding houses supply fuller architectural evidence for new era.

Here the heaps of debris to be dealt with in each case were more compassable and the builders showed themselves less tied by the wall-lines of the previous habitations. It appears, indeed, that in the better parts of the town, wherever the new house plans have been explored, they were able to take in areas which, so far as can be judged from the evidence supplied outside the South-East Palace Angle, was roughly a third greater than the houses belonging to the beginning of the Third Middle Minoan Period. How this increased area was obtained it is impossible to say, but the simplest explanation is that poorer neighbours were bought out and removed themselves to the outskirts of the town. In any case this broadening out of the sites of private houses is a remarkable sequel to the widespread catastrophe and seems to point not only to an unbroken spirit of enterprise but to a considerable reserve of means.

Increase in size of houses.

Excavation of Early Town-Section, West of Palace (1926).

Neolithic and early Minoan house remains.

From the stratigraphic data it is evident that the Palace site itself and a considerable area round was already thickly populated in Neolithic times. The early remains uncovered in the South Section of the Central Court consist of two houses representing the latest Neolithic phase—literally dovetailed into one another—showing small living-rooms with fixed hearths and an agglomeration of store cells. Submerged, again, beneath the pavement of the West Court there came to light the rubble walls of other small houses closely huddled together, the earlier elements of which go back within the limits of the Early Minoan Age. Of the Town of Knossos as it existed at the opening of the Middle Minoan Age a fresh glimpse has now

Middle Minoan houses of

been afforded by the excavations undertaken by me in 1926 in the area immediately North-West of the 'House of the Frescoes' described below. S.E. Palace Angle.

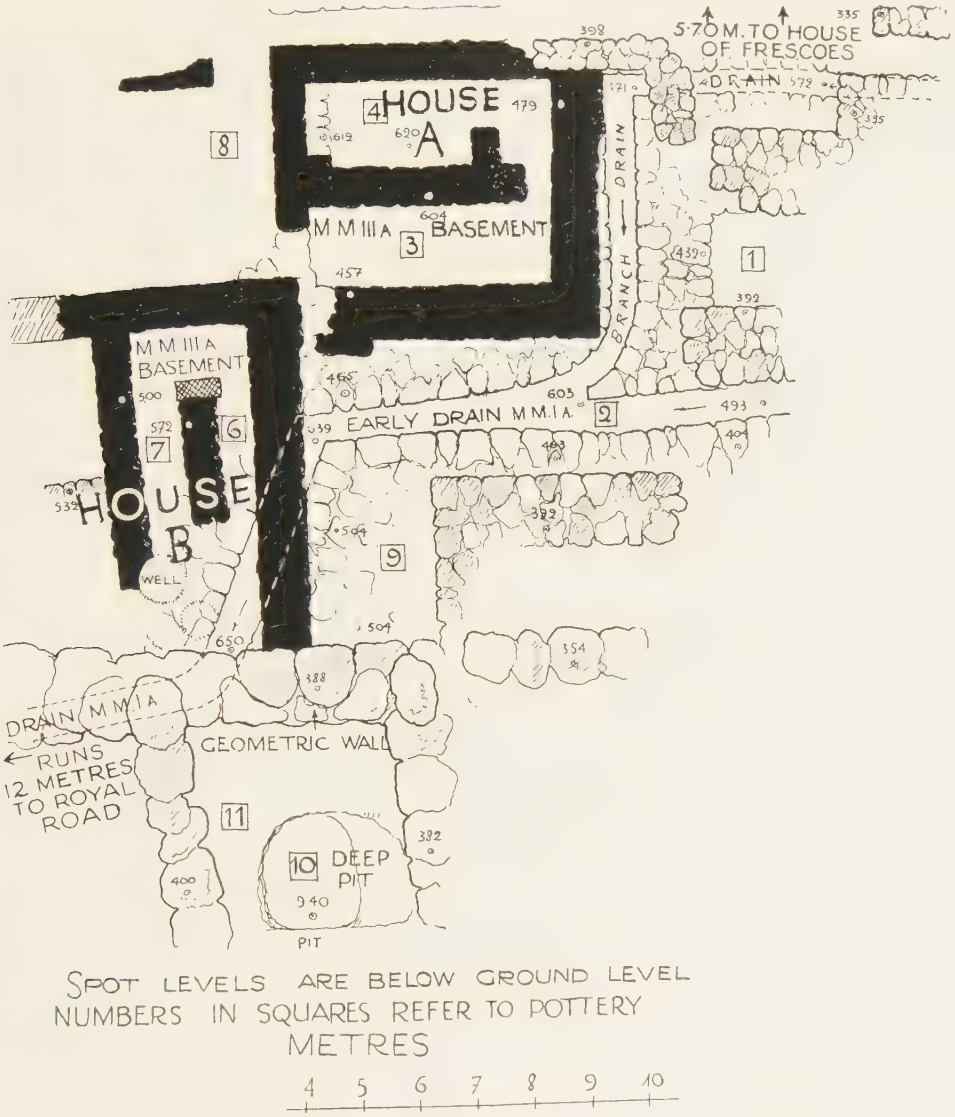


FIG. 203. SECTION OF EARLY TOWN, KNOSSOS, WITH M. M. I *a* DRAIN AND BASEMENTS OF M. M. III *a* HOUSES. (BY PIET DE JONG.)

A plan, executed by Mr. Piet de Jong, of part of the Town section here revealed, is given in Fig. 203. A remarkable feature of the original constructions is a built drain of rough-hewn blocks. The earliest pottery M. M. section W. of 'House of the Frescoes'.

brought out was of the typical M. M. I *a* class, masses of which were found within it. The channel makes several bends, following, no doubt, the interspaces between houses of the same Period and in its upper course is divided into two branches (see Fig. 204). Some ten metres North of the

FIG. 204. VIEW SHOWING EARLY TOWN DRAIN AND MIDDLE MINOAN BASEMENTS.

Early drain and pottery.

lower end of its course, so far as this was traced, it reappears, beyond an unexplored strip, and runs beneath the paving of the 'Royal Road'. Among the remains of advanced polychrome vases belonging to the close of M. M. I *a* found within the drain was a very beautiful bowl (Fig. 205) with barbotine designs of stylized crocuses in orange and bright red.

M. M. III *a* vessels from basement floors.

The ceramic evidence tended to show that the drain was given up about the close of M. M. II, its course being at one point interrupted by the foundations of a house (B) built at the beginning of M. M. III.

On the basement floors of this and the small adjacent House (A) at a depth of between five and six metres below the modern surface level was a rich deposit of pottery of which some specimens are shown in Fig. 206 representing characteristic types of the earlier M. M. III phase (*a*). The spotted class, imitative of inlaid stone ware, so abundant in the North Lustral Area of the Palace, was well to the fore, and the tall ewers like *e* with pronounced neck rings show bright red bands (Fig. 206, *e*). A remarkable new feature was presented by fragments of a wholly new class of vases faced by what can only be described as a vermilion glaze. Restored examples of an ewer and cup of this class are given in Fig. 206, *a*, *b*. The cup, Fig. 206, *d*, approaching the Vapheio form, supplies an interesting survival of polychromy, presenting small bud-like excrescences beneath its spiraliform bands with an orange centre surrounded by deep red. The rest of the decoration is white on a dark grey ground. The rayed disk from which the spiral bands start bears a certain affinity with those of a contemporary cup found beneath the 'House of the Fallen Blocks' and placed here for comparison (Fig. 206, *c*). In a parallel stratum a little East of these basements by the 'House of the Frescoes' there also came to light the very beautiful little hole-spouted vase (Fig. 206, *f* 1, 2) with cockle-shells in relief on its upper margin. Altogether this group of vessels supplies valuable new illustrations of this interesting Middle Minoan phase.

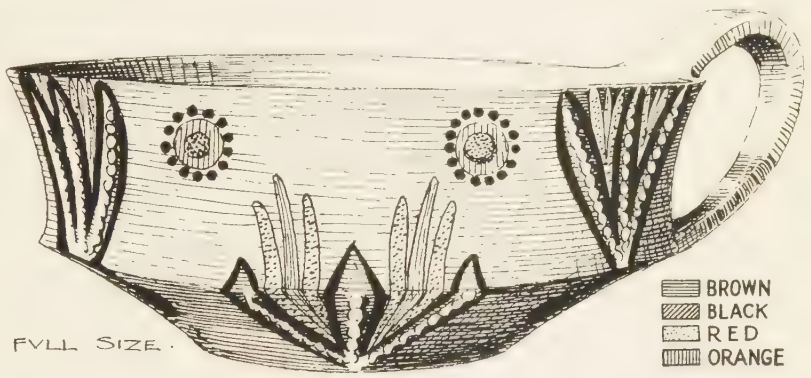


Fig. 205. Bowl with Barbotine Decoration and Crocus Flowers from Early Town Drain, M. M. I *a*.

It is observable that while in the case of the earlier house remains on either side of the old drain the setting is at a variety of angles, with corners in some cases rounded off, the M. M. III foundations are consistently rectangular. House A, the South-West corner of which seems to have abutted on B, shows an oblong plan including two elongated basement rooms with no sign of

M. M. III *a* house plans.

either exit or staircase. The other house (B) may originally have had the same shape on a somewhat larger scale and with more internal divisions. We have here examples of houses belonging to the earlier phase *a* of M. M. III which seem to have been of the same general class as those outside the S.E. Palace Angle that have preserved such evident traces of the seismic overthrow that took place towards the end of that Period. In the present case the evidence for the succeeding Minoan epochs had been destroyed by the building operations of the Greek and Roman Age.

The illustrations of M. M. III *a* houses and their contents here brought to light have a special interest in view of the discovery, in 1926, of Chamber Tombs of this epoch excavated in the steep beyond the Kairatos, the prototypes of those of Mycenaean Greece.[1]

'Tower Houses.'

It is to the fully excavated remains of the 'House of the Fallen Blocks' and the adjoining 'House of the Sacrificed Oxen' that we must turn for the best examples of the ordinary town-houses of Knossos as they existed at the time of that catastrophe. Both these houses with their closed basements only approached by wooden steps or ladders from the upper story belong, as already pointed out, to what may be called the class of 'tower houses', so well represented still in the wilder parts of Albania and Greece. A series of these, moreover, is seen among faïence plaques delineating house-fronts from the 'Town Mosaic' attributed above to the close of M. M. II.[2]

Middle Minoan town as illustrated by 'House Tablets'.

That there had already, however, been a considerable advance in house building during the first half of the Middle Minoan Age is demonstrated by other tablets of the same Mosaic, which in many of their features might be thought to belong to the streets of a modern town. The doorways here appear on the ground level and there are often two upper stories, and in some cases roof attics. The windows show four and, at times, six panes coloured a brilliant scarlet, and perhaps consisting of oiled parchment. The timber construction is very marked in these façades, with horizontal beams and their round ends or their painted plaster imitations. As distinct from many of the 'tower houses' which may have been mainly designed for the outer borders of the town, these do not present any sign of masonry.

We have here the street fronts of a 'medieval' Minoan city which give the appearance of having been packed close together and are inclined to elevation, as in the case of a town contained within a fortified enceinte. The heightening effect of such confinement within artificial limits, so well exemplified in later times, has indeed been recently well illustrated by the

Early Babylonian parallel.

[1] See below, p. 555 seqq.

[2] *P. of M.*, i, p. 301 seqq.

FIG. 206. VESSELS IN THE M. M. III *a* STYLE FROM EARLY BASEMENTS. (THE UPPER PART OF *a* IS RESTORED.)

votive house-fronts of baked clay found by Dr. Andrae in the Temple of Ishtar at Babylon and dating from the beginning of the Third Millennium B. C.[1] In that case the houses show two high stories, the second, however, opening on a broad roof-terrace and occupying only half the space of the ground-floor area.

Whether or not the 'Town Mosaic' was intended to represent Knossos itself or its harbour town, it is certain that the craftsmen who designed it in the Palace faïence factory intended to reproduce the contemporary architectural features that were familiar to them. Nor is it by any means impossible that the early town of Knossos was fenced round by some kind of fortified enclosure. The 'City of Refuge' on the heights of Juktas beyond was, as we have seen, surrounded by a 'Cyclopean' wall consisting of horizontal courses of massive rough-hewn blocks and dating, as the sherds within it show, from the First Middle Minoan Period.[2] With the rise of Sea Power and the establishment of a central control in the Island, to which the highly developed road system points, there seems to have been a tendency in the later part of the Middle Minoan Age, at all events, to give up any attempt at fortification, except perhaps in the case of isolated guard-houses or *phrouria* on the lines of communication. But, as has often happened elsewhere, the old fortified enceinte of the City may well have survived for customs' purposes as a kind of *octroi* barrier. One of the results of the great Earthquake may well have been to wipe out finally any such constricting girdle, and thus to have given free play to the expansive impulse in building operations that marks the beginning of the New Era.

Fortified enceinte of Juktas, M. M. I *a*.

Later Town of Knossos, open.

The houses of which we now have such remarkable remains in the Town of Knossos no longer rise above the closed basements of the tower-like type described above, though they are occasionally provided with cellars reached by small flights of stairs. Their entrances are on the ground floor, generally near a corner, and sometimes approached by a ramp. They are not only more spacious, but show greater variety of plan than is suggested by the conventionalized house-fronts of the 'Mosaic'. In their exterior, at any rate, woodwork now only played a subsidiary part, and we have evidence on every side of good ashlar masonry, consisting both of limestone and gypsum courses, of which, in the case of the South House, as many as eight are in part preserved. In contradistinction to the restored Palace, where the

Advance in domestic architecture.

[1] Andrae, *Die archäischen Ishtar-Tempel in Assur*, p. 36 seqq. and Plates XIV, XV, who, however, quite gratuitously, divided them into two separate dwellings, the lower human and the upper belonging to the divinity. Doubtless the whole was consecrated, but none the less represents a current house type.

[2] *P. of M.*, i, p. 156.

only inner walls showing ashlar construction are those of light-areas, the Royal Villa gives us an example of a pillar-room and staircase walls built of fine gypsum blocks, in the latter case coated with red-faced stucco. It is to be noted in reference to the less rubbly character of many of the interior walls of these private houses that there was a greater tendency than in the reconstructed West Section of the new Palace to adhere to the old practice of lining the lower part of the walls with gypsum dado slabs instead of covering the whole wall with painted stucco.

The South House.

Importance of 'South House'.

Both from its position and the extent of its remains the 'South House' may claim a first place amongst the private residences now built in the area immediately surrounding the Palace. Its North-West angle, at its first-floor level, actually cut into the foundations of the upper section of the old 'Stepped Portico' near the point where it abutted on the former South-Western entrance of the Palace.[1] Part of its back-yard, on the other hand, was carved out of the line of the original South Corridor, which the Earthquake had entirely ruined—the cliff forming the back of the clay cutting being faced by a dry walling (see Plan, Fig. 208). The position of the house, as is shown in Fig. 44 on p. 94, where it appears on the left, was of great amenity; it overlooked the glen of the Vlychià stream, and faced on its farther side the massive piers of the Viaduct and the decorative façade of the 'Caravanserai', with the peak of Juktas peering above the opposite hill of Gypsàdes.

Its intrusion on old Palace boundary.

Palatial debris found in back-yard.

Into the yard behind (see Fig. 207) there had further fallen at the time of the final catastrophe of the Palace blocks of masonry and debris, including fragments of fresco designs from the Corridor of the Procession and other neighbouring parts of the great building. With these were remains of large jars in the Palace Style, some of them presenting Double Axes, and others with octopus designs and conventional papyrus and rosettes. Level with the second course of the North wall of the House, there occurred a lapis lazuli ring-stone with a gold setting, the intaglio on which showed a male personage leading a lion. It was of Late Minoan work, and may, like the jar fragments, have been derived from the Palace. Near this, in the direction of the back wall, an object came to light of a quite unprecedented character. It had the appearance of a small rough limestone block, but it was found to be in two pieces, the lower of which had a square hollow containing triangular *tesserae*, such as might have been used for a mosaic, of various materials. These included plain and smoked rock crystal, amethyst, beryl

Stone box with deposit of *tesserae* in precious materials.

[1] See above, p. 162, Fig. 82.

lapis lazuli, and solid bronze and gold, the first three lying loose, the others set close together. The rough stone receptacle itself which might have

FIG. 207. VIEW OF EAST SECTION OF NORTH WALL OF SOUTH HOUSE AND PART OF BACK-YARD.

been set under a wall suggests a 'foundation deposit', but the whole discovery remains enigmatic.

Construction of back-wall.

The Eastern section of the back-wall of the house, as seen at the time of excavation from the terrace of the old South façade of the Palace (Fig. 207), shows in places eight courses in position, and a stone drain issuing from

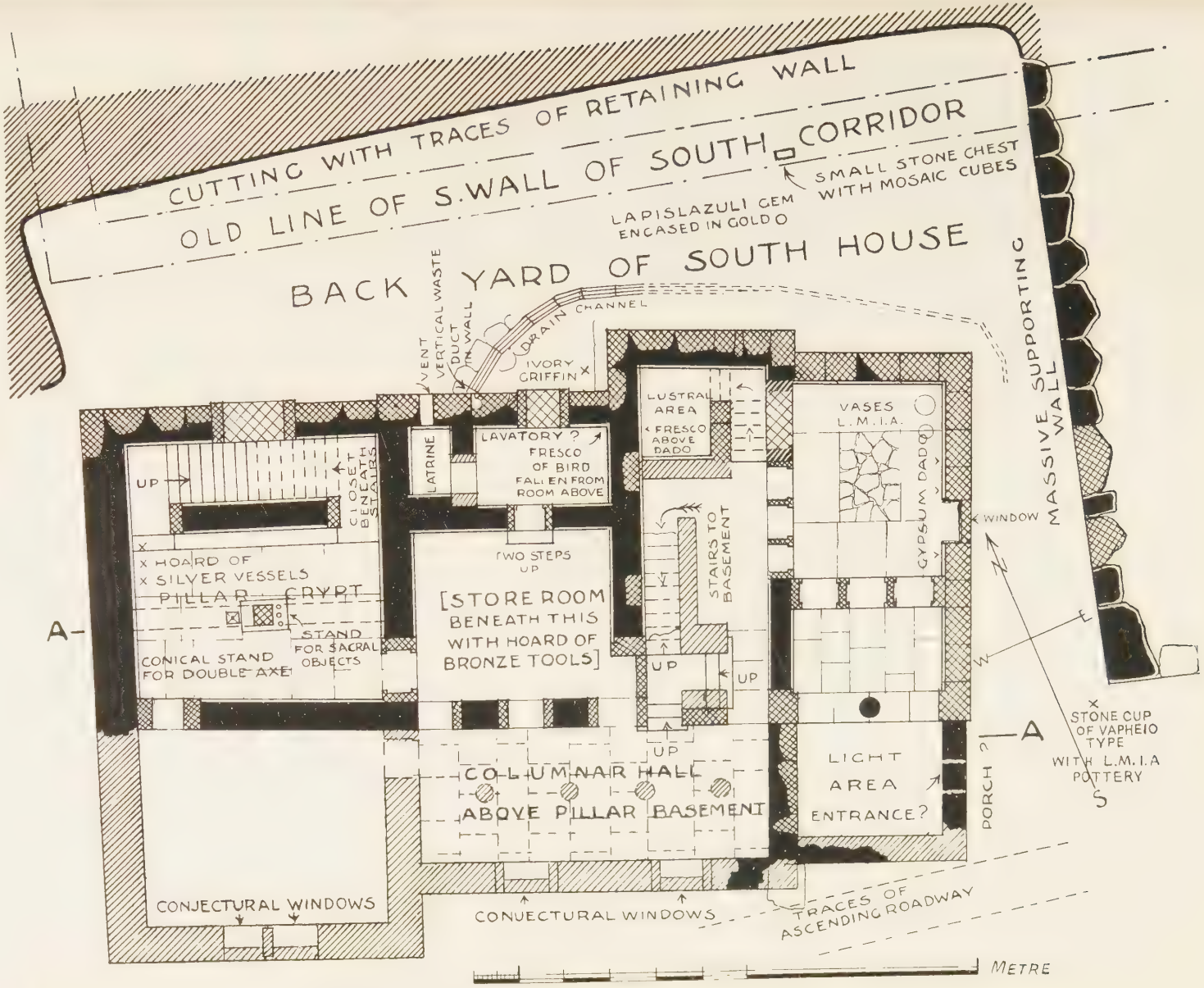


FIG. 208. PLAN OF SOUTH HOUSE. (BY CHRISTIAN C. T. DOLL.)

its base which took away the waters from the roof.[1] Its construction is interesting, the courses of limestone masonry being broken below by a higher line of orthostatic gypsum blocks resting on a projecting plinth of limestone and thus preserving the tradition of the Early Palace walls.

The aggressive setting out of this house-plan, cutting thus into the old Palace front, as well as the extraordinarily completeness of its interior arrangements (see Plan, Fig. 208), justifies the suspicion that it was the residence of some Palace functionary with considerable interest at Court.

FIG. 209. WINDOW OF MEGARON, SOUTH HOUSE.

Window of Megaron.

There are traces of a line of ascending ramp or roadway by which it was probably entered on the ground level by some small porch on the East flank of its South light-area. This area faces the single-columned fore-hall of a small Megaron with two *antae* and triple door-openings. In order to light the inner section of the Megaron a window of an interesting form was made in the East wall, (Fig. 209), immediately facing a triple door opening on the opposite side. By this, too, a little light could filter through to the landing of a small flight of stairs beyond and into a 'lustral area' to the right.

The inner line of this window, instead of coinciding, as was more frequently the case, with that of the wall itself, was set back so as to form an embrasure 37 centimetres deep, and its sill was only 21 centimetres in breadth, instead of 58 representing the full thickness of the wall. The wall on this side was formed of gypsum blocks, resting on a limestone base, and the lower part of the sill consisted of an orthostatic gypsum slab. The window itself was quite narrow—slightly under a metre[2]—and, judging

[1] The drain was of limestone lined with cement. Its declination was away from the house and it probably supplied a cistern in the yard.

[2] Its exact width was 96 cm. Like the gypsum blocks of the wall the lower slab

from the analogies supplied by balustrades, its original height may have been about 1·60 metres.[1]

This system of windows with comparative narrow sills, set back in a deep bay in the wall, is seen from an example at Mallia to go back to the very beginning of the 'Age of Palaces' (M. M. I *a*). In that case a window of this kind opens from what seems to have been a room actually reserved for occupation by the local Priest-Kings on an open inner corridor, serving as a light-area on the ground level.

This recessed arrangement enabled those within the chamber to lean comfortably over the window-sill whenever they wanted to look out, and the best illustration of its convenience is the painted stucco fragment from the Early Palace of Mycenae,[2] where fat ladies are seen lolling out of window openings, apparently looking at some spectacle, with their arms thrown over the sills—

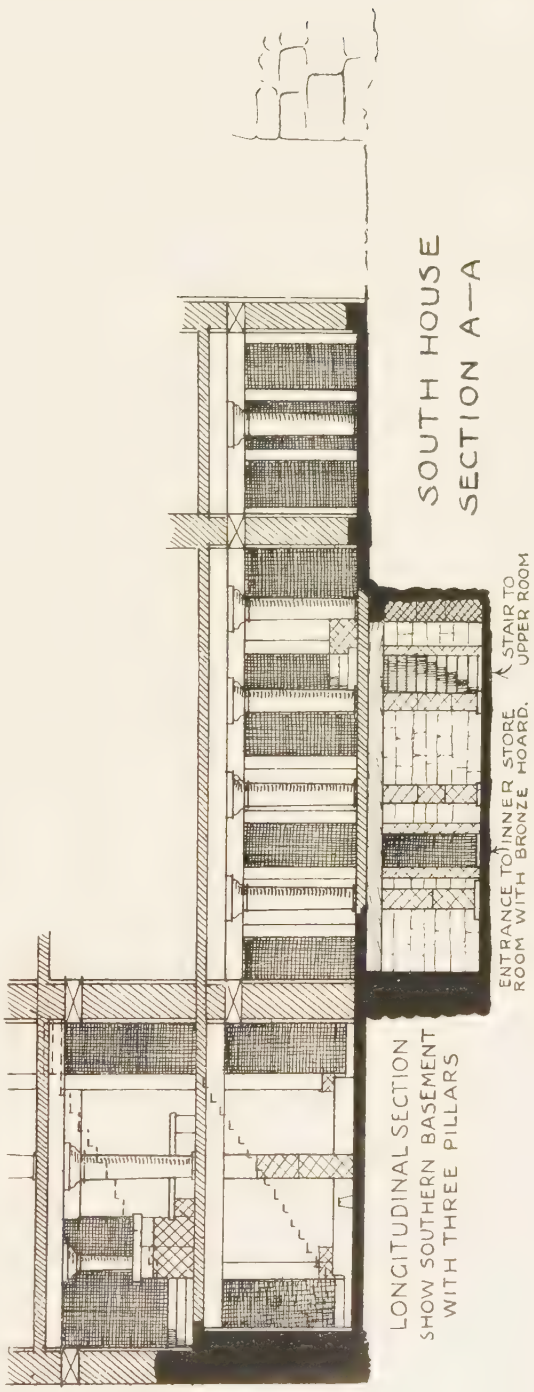

SOUTH HOUSE
SECTION A—A
STAIR TO UPPER ROOM
ENTRANCE TO INNER STORE ROOM WITH BRONZE HOARD.
LONGITUDINAL SECTION SHOW SOUTHERN BASEMENT WITH THREE PILLARS

FIG. 210. LONGITUDINAL SECTION OF SOUTH HOUSE. (BY CHRISTIAN C. T. DOLL.)

of the sill rested immediately on a clay bedding. The base of the bay was formed of irregular limestone blocks with traces of clay bedding above and had probably originally been lined with a gypsum slab.

[1] The gypsum orthostat of the sill, like the blocks of the wall, was only 43 cm. high.

[2] *P. of M.*, i, pp. 444, 445, and Fig. 320. (Repeated below, p. 410, Fig. 236.)

an attitude that would have been impossible had the window been the breadth of an ordinary wall.

The small East window of the South House had long escaped recognition,[1] owing to the fact that its embrasure had been blocked on the occasion of a restoration carried out at a time when the mature ceramic phase of L. M. I *a* was in vogue. This had further involved the setting of a new line of gypsum dado slabs across the opening of the bay, the ragged remains of which had further masked the character of the original construction. It is possible that some new and larger window was made at this time in the North wall. What is clear is that within the bay of the outer wall, immediately West of the North end of the Megaron, a change took place at this epoch that may be thought to have considerable significance.

Lustral area—later filled in.

Within this bay, as was brought out by supplementary excavation, there had originally existed a 'lustral area' of the usual type, lined with large gypsum slabs, and approached by descending steps with a parapet and column (see Plan, Fig. 208). This was now filled in—the date of the filling being well established by the L. M. I *a* sherds above the remains of gypsum floor slabbing—and the whole space provided with a new floor of the same material on a level with that of the neighbouring Megaron. Access was opened on that side by means of two doorways of the usual kind, and the little chamber thus formed, which inherited the upper part of the parapet of the old basin, was provided with a new gypsum dado at the higher level. This was put up at the expense of painted stucco wall-decoration that had existed above the older dado slabs, and the fragments of this were found amongst the debris of the filling beneath the later floor.

Remains of its painted decoration.

These depict plants, some resembling grasses while others show high stems and lily-like leaves. They are seen in one case (Fig. 211, *a*) growing out of a yellow ground, in another a small reed-like plant rises out of what may be taken for a blue pool with undulating red and yellow banks. One fragment represents part of a large pebble with variegated bands resembling those of the 'Partridge Frieze'.[2] One and all, they betray a great family likeness to some of the plant and rock-work forms found in the 'House of the Frescoes', and there is every reason for believing that these fragments belong to the same date, the closing phase, namely, of M. M. III *b*. In the adjoining space to the West and probably derived from the same

[1] I only realized that the remains were those of a window during a re-examination of the South House in 1926. On clearing out the later filling of earth and debris the construction became clear.

[2] See Coloured Plate VIII (Frontispiece).

field came to light another painted fragment, apparently forming part of a figure of a swallow (Fig. 211, *c*).

That in its original form as a sunken area this space had served as a lustral basin of the usual kind, was shown by the occurrence of some clay

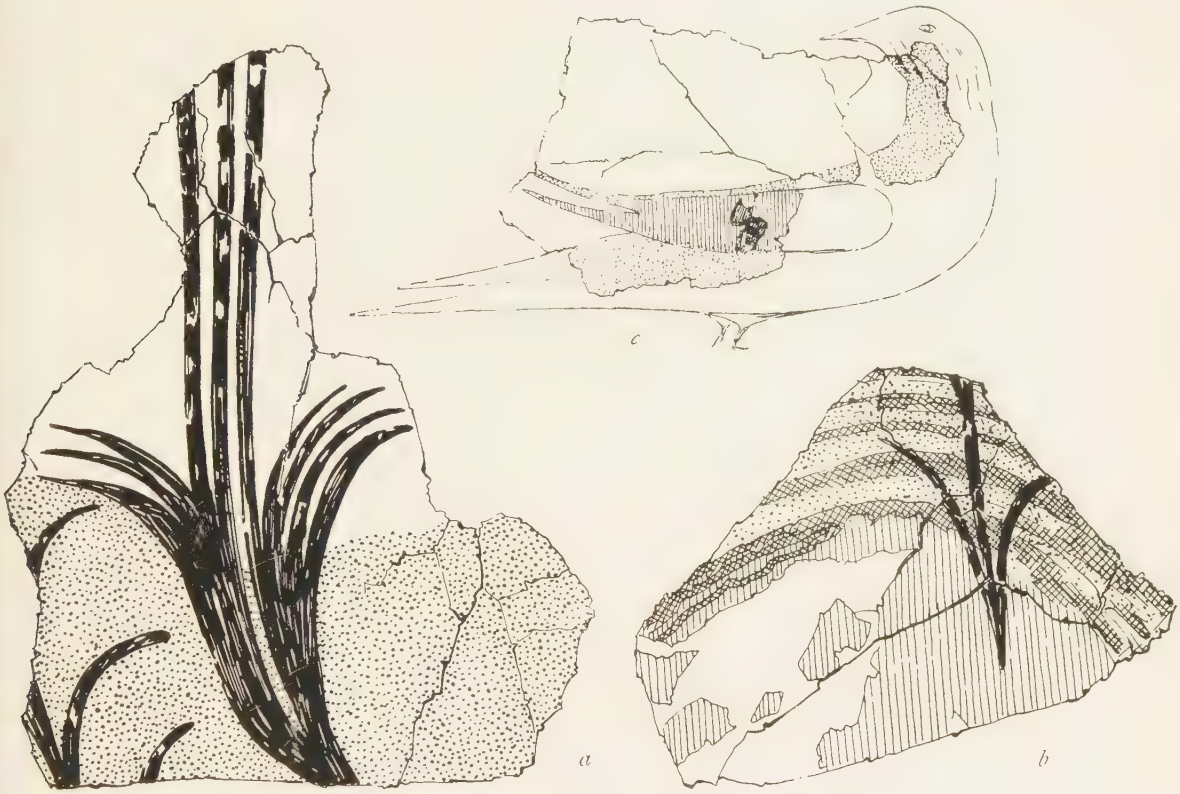


FIG. 211. FRESCO FRAGMENTS FROM SOUTH HOUSE.

vessels of characteristic shape and coarse fabric identical, on a smaller scale, with those found in the Early M. M. III deposits of the North-West and South-East Lustral Basins of the Palace.[1] That these were of a ritual kind and made to hold oil or unguents for some anointing ritual is a fair conjecture. The filling in, then, of this sunken area and its conversion into what looks like that of an ordinary bath-room resembling that of the Domestic Quarter[2] is a significant circumstance. It looks as if the

[1] *P. of M.*, i, p. 411 and Fig. 295.

[2] A. E., *Knossos, Report*, 1902 (*B.S.A.* viii), pp. 52–4 and Fig. 27, *a*, *b*. See *P. of M.*, vol. iii. A bath-room without a balustrade containing a very elegant painted clay bath of M. M. III *b* date was found in the South-East Insula of the Palace (*P. of M.*, i, pp. 579, 580 and Fig. 424).

ordinary conveniences of domestic life were beginning to outweigh religious ceremonial.

Ceramic evidence of M. M. III *a* date.

A number of sherds collected by me in the interstices of the neighbouring walls belonged to what may be called the M. M. III *b* 'Earthquake Stratum', and showed that that style was still in vogue when the house was built in its original shape. This evidence agrees with that supplied by the earliest pottery in the 'House of the Frescoes' described below.

Fig. 212. Cup of 'Vapheio' Shape in Veined Stone from L. M. I *a* Heap by South House.

On the other hand, a quantity of ceramic fragments found in the filling material of the 'lustral basin' belong to the mature phase of L. M. I *a*, and show that the raising of its floor was part of some plan of restoration carried out at that epoch. Outside the Southern angle of the building and close to the neighbouring corner of the supporting terrace wall beyond masses of L. M. I *a* pottery also occurred. This deposit was of special interest since it contained and approximately dated the greater part of a cup of the 'Vapheio' shape executed in a very beautiful veined stone (Fig. 212).

Standing on the later gypsum pavement in the N.E. corner of the Megaron were the two painted vases (Fig. 213, *a* and *b*) which must certainly belong to the last moment of occupation in this part of the house. One of them (*a*) is a three-handled spouted jar with sprays of peas or vetches, still representing the earlier L. M. I *a* tradition. The other is a 'stirrup vase' with broad spiral decoration, also of an early character. An 'amphora', however, of which fragments were found on the floor of the Pillar Rooms on the West side of the house, showing rosettes reserved against a dark background, has a somewhat more advanced appearance. It looks at any rate as if the later stage of the house, as remodelled towards the close of L. M. I *a*, must have been very short-lived.

Pillared basements.

From the lobby entered through the West doorways of the Megaron a narrow flight of 12 stairs leads down to an elongated basement chamber

containing three stone pillars that would naturally have supported as many columns in the hall above. A view of this pillared basement as

a *b*

FIG. 213. EARLY L. M. I POTS FROM SOUTH HOUSE.

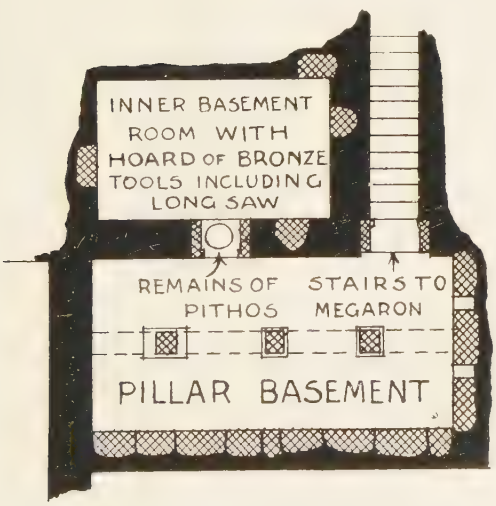


FIG. 214. PLAN OF PILLAR BASEMENT AND STORE-ROOM, SOUTH HOUSE.

excavated is given in Figs. 215 and 216. From this in turn towards its Western end opens a doorway leading into a smaller store-room (see Plan, Fig. 214) where were the remains of a *pithos* of exceptional character[1] and a deposit of bronze tools including three saws. These will be illustrated below[2] in connexion with similar hoards.

Store of bronze tools.

The two doorways of the pillared basement—that by which it was entered from the stairs and the other opening into the smaller store-room—were each provided with monolithic

[1] It had stamped bands in relief, showing a reticulated design with small knobs in the interstices.

[2] See p. 630 below, Fig. 393.

gypsum jambs (Figs. 215 and 216). This feature represents at Knossos an architectural innovation, repeated in the case of a neighbouring house to the South-East and again in the Little Palace, as illustrated below.[1] The

LANDING BLOCK OF STAIR
STEPS OF STAIR
HOARD OF SILVER VESSELS
SLAB WITH SOCKET HOLES FOR SACRAL OBJECTS
BASEMENT WITH BRONZES
TO MEGARON
SUNKEN STEPS OF UPPER STAIRS
BOLT HOLE FOR BAR
LARGER BASEMENT ROOM WITH THREE PILLARS

FIG. 215. VIEW IN SOUTH HOUSE AT TIME OF EXCAVATING SHOWING PILLARED BASEMENT, DOORWAYS, STAIRS, AND PILLAR ROOM.

replacement of the timber framework of the door by gypsum is itself a sign of the times and seems to be a special characteristic of the Restoration.

Primitive lock.

In the doorway opening on the staircase a very interesting feature was noticeable. Its West jamb showed, in addition to a large hole for the wooden bar that served as bolt, a smaller perforation on each side slanting across to the bolt socket and evidently intended for the insertion of some metal pin into the wooden bar so as to prevent its withdrawal (Figs. 217, 218). The existence of a perforation of this kind on the staircase side shows that though the door was closed and bolted from the side of the basement

[1] See below, p. 518 and Fig. 319.

FIG. 216. THREE-PILLARED BASEMENT OF SOUTH HOUSE.

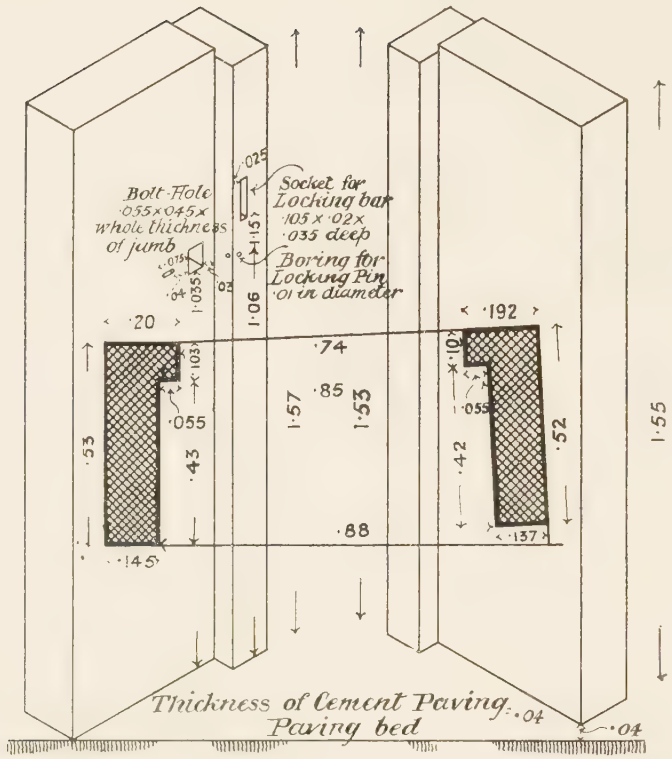


Fig. 217. Plan and Isometrical Sketch of Gypsum Jambs, showing Holes for Bolts and Lock. ($\frac{1}{20}$.) (By Christian C. T. Doll.)

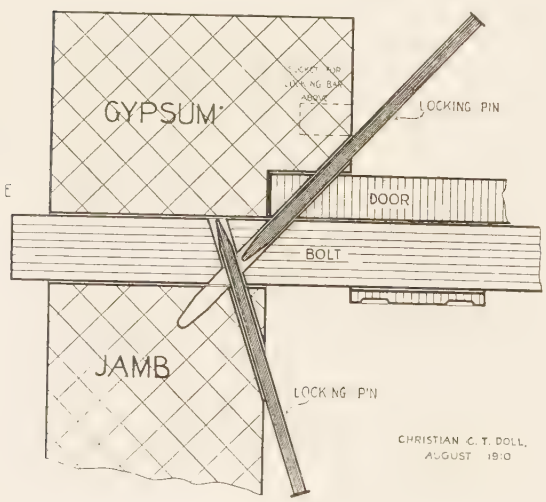


Fig. 218. Horizontal Section showing Primitive Lock, South House.

room, egress from it could be prevented on its outer side. Mr. Christian Doll's Section, Fig. 218, explains the character of this very primitive type of lock in which the simple pin that served as key was apparently left inserted in the bolt.

It is not on the face of it easy to understand why it should have been thus made possible to lock the cellar door from inside as well as outside. It seems probable that the little minor store-room with which, as we shall see, it was connected, may have been accessible from the central room of the upper floor by means of a trapdoor and ladder, and that the usual means of access to the larger basement room was by this route. Its other door at the foot of the stairs communicating with the entrance section of the house would naturally have been used for bringing in stores from outside. We see that metal objects were kept inside the inner cellar.

The other doorway of this basement room with the three pillars was secured by a simple bar, the sockets of which are visible in the gypsum jambs, and this was controlled from the little inner cellar referred to.

The staircase system above the lower flight leading up from the pillared basement had evidently undergone some modification at the time when the neighbouring section of the building was remodelled. Besides a narrow flight of stairs that led up—with the interruption of a broad landing—from the columnar hall above the Pillar Basement, three wide steps are seen rising from a passage-way to the East. The borders of these had been later somewhat narrowed, but the original arrangement was very neat. The steps were not only skilfully fitted into one another, but had been dovetailed into the angle blocks in such a way as to form one compact structure (Fig. 219). Stairs and dovetailed steps.

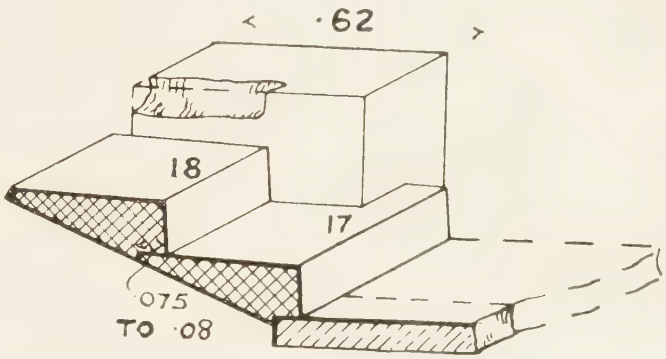


Fig. 219. Steps dovetailed into Angle Block, South House. (By Christian C. T. Doll.)

The upper hall from which the main flight of stairs on this side led seems to have had four columns, three above the piers below and one over the East wall of the basement. The bases, together with the floor of the hall, have now been restored in concrete, thus preserving the pillar basement below, with its interesting features. From the columnar hall above simple openings between two piers led to the space South, over the small store-room. The pier nearer the stairs had to be somewhat raised to its former level: the pier opposite was in place, and both were covered to the base with red-faced stucco.

Practically all the lighting of the small room thus entered was from the columnar hall, by the three openings on its Southern side. It must have been, nevertheless, an important centre for the whole ground floor of the house. It was apparently provided, as suggested above, with a trapdoor leading to the two store-rooms of the basement, and two steps on its Northern side led up to a little elongated space with a window opening, in this case the full thickness of the wall. This space stood in connexion with a water system, a pipe hollowed in a limestone block on its left side having apparently served as a conduit from the roof to the small covered channel outside the wall already described, and which is believed to have led to a cistern beyond. At the West end of the lavatory is what seems to be a latrine, with a vent giving on a pit outside that would have been from time to time cleared out. Lavatory and latrine.

Pillar crypt with stands for Double Axe and other cult objects.

A doorway at the S.W. corner of the central chamber led into a very completely preserved pillar crypt of the same type as that already so well illustrated by the South-East House.[1] The square central pillar, here consisting of a longer and shorter gypsum block, was preserved to a height of 1·80 m. Near it on one side, as in the former case, was a small pyramidal socket of gypsum for the sacral Double Axe (see Fig. 223). On the other side was a curious base with three sockets, also, evidently, for the insertion of cult objects. It seems possible that these may have consisted of the sacral horns with another Double Axe rising from their centre, as in the case of those found on the altar ledge of the late Shrine of the Double Axes.[2] Ritual vessels of painted clay were represented by part of an amphora, referred to above, with reserved rosettes. Along the middle wall on the North side of the room ran a stone ledge that might have been used as a low bench, and at each end was an opening, that on the left leading to a flight of stairs, while that on the right gave access to a closet beneath them.

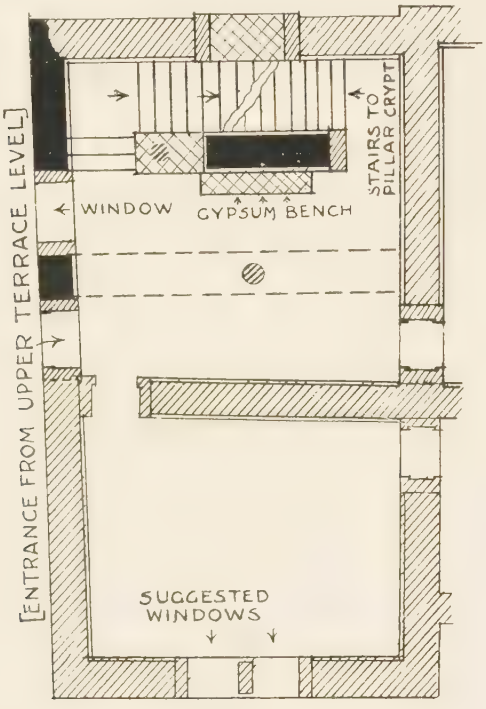


FIG. 220. PLAN OF FIRST FLOOR OF WEST SECTION OF SOUTH HOUSE.

One-columned chamber above.

The stairs leading up from the pillar crypt to what seems to have been a one-columned chamber of the same dimensions above finds an exact parallel in the ' Royal Villa ' described below.[3] Remains of a gypsum bench came to light near the sunken remains of its North wall, showing a much more elegant arrangement than that illustrated by the mere ledge below (see Fig. 223). The West wall of this columnar room, the foundation wall of which was built against the cutting on that side, rose above the ground level, and there was here shown fine gypsum masonry of an upper façade. Another pyramidal gypsum stand that was found in connexion with these remains of upper structures has been placed by the restored column, and may be taken as an indication that this upper chamber, too, served a ritual purpose.

[1] *P. of M.*, i, pp. 427, 429 and Fig. 307.

[2] See above, p 338 and Fig 190.

[3] See below, p. 408.

Fallen from its floor, moreover, near the West wall, and sunken to a level of about 75 cm. above the pavement of the pillar crypt below, was found a small hoard of silver vessels (Fig. 221) that must have been contained in a small wooden coffer which had kept them together in their fall. These vessels, clearly designed for ceremonial use, consisted of three bowls of surpassingly tenuous fabric, nested together, and a small handled vessel like a modern cream jug (Fig. 221, *b*). One of the bowls (*a*) was decorated with a repoussé work design of 'tailed' spirals of Middle Minoan tradition: another (*c*) had an overlapping rim and a handle curving upwards.[1]

Hoard of silver vessels.

FIG. 221. HOARD OF SILVER VESSELS FROM THE SOUTH HOUSE.

[1] The vessel, Fig. 221, *c*, represents this bowl in profile with the handle restored. An interior view without the handle is given behind the 'cream jug'.

Ivory relief of griffin seizing bull.

Derived also from this or another of the upper rooms, there was found within the outer N.W. Angle of the back wall of the house, amongst fallen debris, an ivory high relief showing the fore-part of a Griffin seizing the hind quarters of a bull (Fig. 222 and Suppl. Pl. XIX). No reproduction can give an adequate idea of the powerful modelling of this relief, combined as it is with applied anatomic knowledge. A certain skeletal aspect, recalling the cranium of a bird of prey, is suggested, indeed, by the head, owing to the fact that the

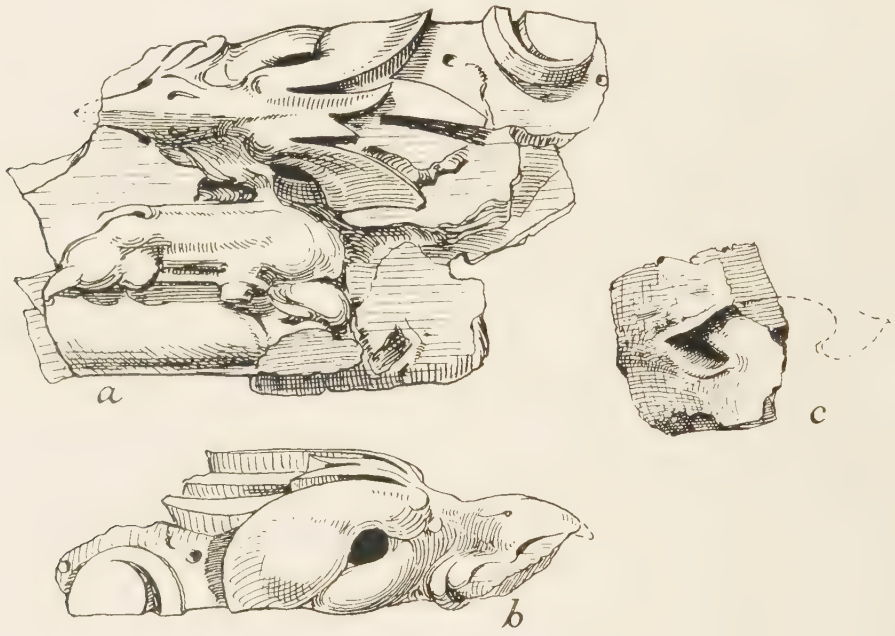


Fig. 222. *a*, *b*, Forepart of Ivory Griffin seizing Leg of Bull; *c*, Part of Bull.

inlaying material that originally filled the eye-sockets has disappeared. Of the bull, only the hind leg, seized by the monster's talons, is preserved and the fragment Fig. 222, *c*.

While the silver service, which may have been reserved for religious occasions, suggests the well-to-do condition of the owner of this house, the ivory relief gives even a higher idea of his appreciation of art.

Upper flight of stairs.

Thanks to the fact that this part of the West wall of the house was backed, with an interval of filling, by a cutting in the soft rock, the door jambs and landing, with the initial steps of the upper flight of stairs, had remained in position, while several more of the steps including those giving on the landing above were found to have subsided in their proper order. By reconstructing the upper part of this section of the North wall we were thus

enabled to raise and complete the whole upper staircase to its original level, up to the point where it abutted on the floor above (see Fig. 223). It is possible that this may have been a roof terrace with a stair-head such as is shown in the case of several of the house-tablets. There seems to have been an entrance from the adjoining terrace.

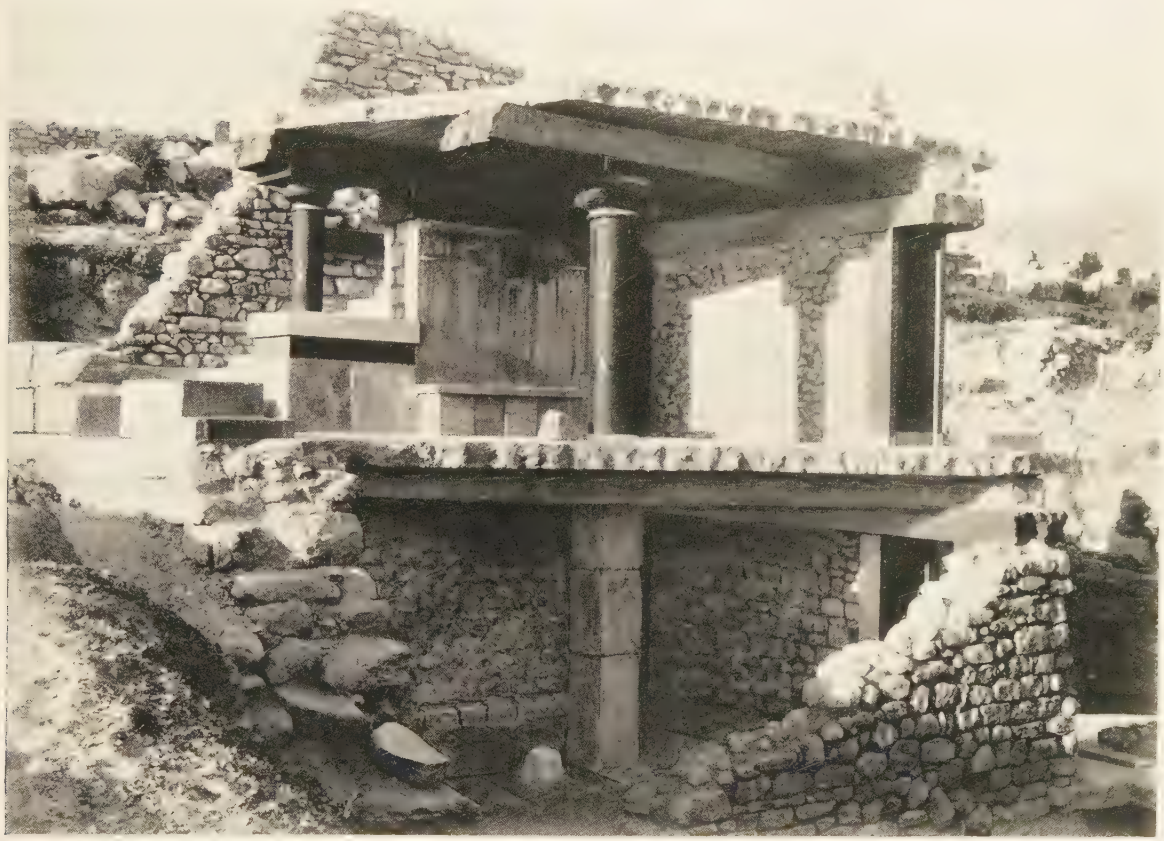


FIG. 223. RECONSTITUTED SECTION OF SOUTH HOUSE SHOWING PILLAR CRYPT WITH DOUBLE AXE STAND: COLUMNAR ROOM ABOVE AND PART OF UPPER FLIGHT OF STAIRS.

The West Section of the house as reconstituted by the use of reinforced cement beams and floors is photographically reproduced in Fig. 223. This shows the pillar crypt with its cult objects, the columnar room above with its stone bench, and the balustrade of the upper flight of stairs as well as a part of upper gypsum façade rising above the terrace level to the left. It may be said that in many ways the South House gives the best normal idea of a good burgher dwelling of the beginning of the New Era either at Knossos or elsewhere. Its dimensions, about 18 metres long with an

extreme breadth, so far as preserved, of slightly under 12 metres, cannot, of course, compare with the 'Little Palace',[1] and the Royal Villa, which was about the same size, excels it in some original features.[2] But its arrangements are singularly complete, including its windowed 'Megaron' with adjoining lustral basin, the basement and columnar hall, the lavatory recess, the pillar crypt with its ritual furniture, and the staircase leading up from the columnar room above either to a roof terrace with a stair-head or to another story. It had at least three stories.

Sun-dried bricks.

From the amount of clay deposit in the lower rooms and basements it may be inferred that the upper part of the house walls was largely composed of sun-dried bricks of the kind found in the 'Little Palace'. These, no doubt, were faced by painted plaster.

Adjacent houses with bronze hoards.

A little to the South-East of the 'South House' were excavated basement chambers of two contemporary houses presenting monolithic jambs like those described, and in one case containing a bronze hoard of a similar character, illustrated below.[3] Of another house a little to the South-West, close on the upper borders of a section of the Stepped Portico, only a few remains of walling were preserved, marked, however, by a double deposit of bronze objects of the same kind.[4] A little North-West again are the remains of a fifth contemporary house of the same epoch presenting two pillar crypts,[5] while a sixth residence of the New Era had intruded itself within the actual enceinte of the outlying Quarter at the South-West corner of the Palace, which was also now definitely given over to private occupation. Its structures have been much pulled about, but the lower part of its Northern frontage, of good ashlar masonry, is well preserved, together with a covered drain in front. Immediately West of this, again, parts of a further house have come to light, so that in all seven good houses belonging to private individuals had sprung up close round or actually within the borders of the South-West Palace Angle in the period immediately succeeding the great Earthquake, none of which seems to have remained inhabited after the middle of the First Late Minoan Period.

Private house built within S.W. Palace Angle.

[1] See below, p. 513 seqq.

[2] See below, p. 396 seqq.

[3] See below, p. 630, and Fig. 394.

[4] See below, p. 631, and Fig. 395.

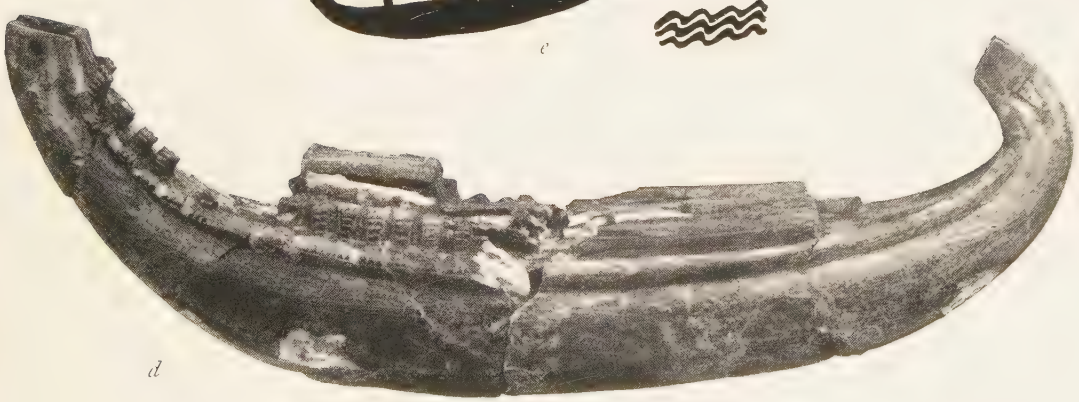
[5] Partially explored by Dr. D. G. Hogarth in the first period of the excavation.

b

a

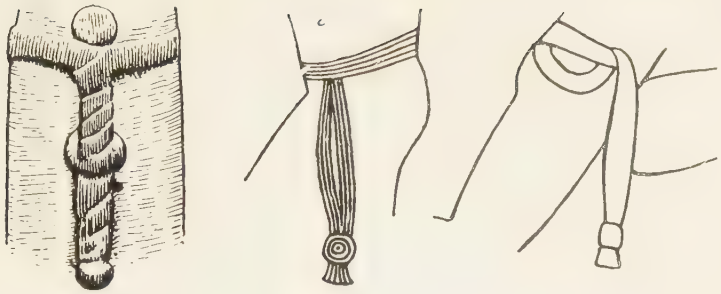
c

e



d

PROTO-LIBYAN COMPARISONS (see p. 23 seqq.): *a*, IVORY HEAD FROM HIERAKONPOLIS, SHOWING SIDE-LOCK ($\frac{7}{8}$); *b*, *c*, IVORY KNIFE-HANDLE FROM GEBEL-EL-ʿARAK, ILLUSTRATING CHALDAEAN INFLUENCE (THE 'ANTITHETIC GROUP'); *d*, IVORY BOAT, HIERAKONPOLIS; *e*, SAILING VESSEL ON 'DECORATED' POT, NAQADA (see p. 26).



a *b* *c*

The 'Libyan Sheath'

a. Pre-dynastic (Hierakonpolis); *b*. Dynastic Egyptian date (Abu Simbel);
c. Dynastic Egyptian date (Rameses II: Abydos

a *b*

M. M. I *a*. Petsofa

c. Bronze Figure
(M. M. III–L. M. I *a*

d. Male Acrobat

e. Female Acrobat
(L. M. II: Circus scene, Knossos)

Minoan Loin-clothing

THE 'LIBYAN SHEATH' AND MINOAN LOIN-CLOTHING COMPARED.

C

A, B, BASE-BLOCKS OF MINOAN PALACE BENEATH HOUSE WALLS AT ARKHANES (see p. 64);
C. MINOAN COLUMN-BASES PARTLY SUBMERGED, NIRU KHANI (see pp. 87, 234).

Remains of Minoan Viaduct, looking North-West.

By Piet de Jong.

Spring-chamber and Niche by Caravanserai.

By Piet de Jong.

Black Steatite 'Rhyton' from Hagia Triada with Harvesters' Rout
(Lower Part restored).

Corridor East of Central Court of Mallia Palace, showing Alternati
Piers and Columns (from Photograph by F. Chapouthier).

a

b

PART OF IVORY GRIFFIN SEIZING ON BULL; SOUTH HOUSE, KNOSSUS (ENLARGED $\frac{2}{1}$).

a, SEEN FROM ABOVE; *b*, VIEW FROM FARTHER SIDE.

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